

ENVIRONMENTAL POLICY



PLAYBOOK

A Collection of State Environmental Initiatives

Sponsored by the Joyce Foundation



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STATE AND LOCAL GOVERNMENTS AND CLIMATE CHANGE

Global climate change is by definition a national and international problem requiring strong multilateral cooperation. But because decisions made at the state and local level can have a significant impact on global emissions, state and local policymakers can play an important role in addressing global warming. Furthermore, states historically serve as “laboratories of democracy,” where promising innovative policies can be tested and used to convince federal policymakers to adopt them nationally. For over a decade, state and local governments have developed goals and policies to track and reduce greenhouse gases implicated in global warming. And in the absence of leadership on climate change from Washington, such state legislative efforts only promise to intensify.

One of the most popular local methods is establishing numeric reduction targets. For instance, in 2001 the city of Portland and Multnomah County, Oregon, began work toward a goal of reducing greenhouse gas emissions to 10 percent below 1990 levels by 2010.

In addition to setting reduction targets, several states recently developed binding standards and regulations to reduce emissions of carbon dioxide (CO₂) from power plants, which account for 40 percent of CO₂ emissions nationwide. In 1997, Gov. John Kitzhaber of Oregon signed the first law (H.B. 3283) in the nation to set carbon dioxide standards for new energy facilities in the state. Similarly, in 2001 policymakers from Massachusetts unveiled new regulations (310 CMR 7.29) to reduce emissions from the state’s six oldest and dirtiest power plants. And in 2002, then-New Hampshire Gov. Jeanne Shaheen signed a law to reduce emissions from fossil-fueled power plants.

In addition to power plants, several states have taken steps to require mandatory CO₂ reductions from the transportation sector, another leading source of greenhouse gas emissions. For instance, Gov. Gray Davis in 2002 signed A.B. 1493, which, for the first time ever, requires mandatory CO₂ reductions from tailpipes. And in 2003, New York Gov. George Pataki pledged to adopt California’s tailpipe standards. He also promised to follow states such as California, Texas, and Massachusetts, which have adopted standards to increase the amount of electricity generated from “renewable” energy resources, like solar power, wind power, or fuel cells.

While some states focus on reducing emissions, other states—particularly farm states—are taking actions to put carbon and other harmful greenhouse gases back in the ground. States such as Nebraska, Illinois, North Dakota, and Wyoming promote farming practices that help to absorb or “sequester” carbon. Carbon-friendly farm practices range from “low” and “no till” methods to conservation measures that encourage farmers to plant carbon-thirsty crops and trees.

In addition to developing targets, regulations, and standards to reduce greenhouse gas emissions, a number of states are developing methods to better identify and track emissions. Thirty-eight states and one U.S. territory

PPI PLAY

Taking the local lead to stem global climate change

WHERE IT’S WORKING

States, cities, and towns across the country

PLAYERS

State, city, and county officials

PPI ONLINE.ORG KEYWORDS
“PPI Climate Change Play”

“By adopting a green building standard for our public facilities and those financed through the Portland Development Commission, we are matching the efforts of our private sector development partners while ensuring that the benefits of green building remain accessible to every citizen of Portland.”

— City Commissioner Dan Saltzman, Portland, Oregon

have completed “inventories” to track their greenhouse gas emissions. To date, four states—California, New Hampshire, New Jersey, and Wisconsin—have developed greenhouse gas emissions registries, which allow emitters to record reductions today so they can get credit under future laws mandating greenhouse gas reductions. Two others, Maine and Texas, have taken legal steps to begin registry development.

Most of these examples identify state actions. But local government leaders can also stem climate change. Examples of local initiatives include:

- ◆ Modernizing energy building codes, which protect homeowners and renters while benefiting builders and contractors by reducing costs and simplifying codes;
- ◆ Supporting local agriculture to reduce dependence on energy-intensive and soil-depleting agribusiness;
- ◆ Promoting “smart” growth and implementing land-use and zoning changes to minimize driving;
- ◆ Creating and promoting mass transit to reduce fuel consumption;
- ◆ Retrofitting street lighting with energy-efficient fixtures;
- ◆ Promoting voluntary compliance with building guidelines by awarding exemplary builders;
- ◆ Creating registries to identify and track greenhouse gas emissions and developing a systematic plan for addressing significant sources of such emissions;
- ◆ Promoting climate-friendly procurement practices in local government and major businesses; and
- ◆ Initiating programs to encourage energy efficiency in commercial, residential, and municipal buildings.

State and local elected officials have the opportunity to take the lead in addressing environmental issues by working with environmental, business, and civic leaders to develop innovative, practical approaches to reduce harmful emissions and stem climate change.

* Resources For Action

U.S. Environmental Protection Agency (EPA) Global Warming website provides links to state actions
<http://yosemite.epa.gov/oar/globalwarming.nsf/content/EmissionsState.html>

5th State and Local Climate Partners' Conference, November 20-22, 2002, in Annapolis, Maryland
<http://yosemite.epa.gov/OAR/globalwarming.nsf/content/NewsandEventsEPAConferencesAnnapolisPresentations.html>

International Council for Local Environmental Initiatives (ICLEI's) Cities for Climate Protection Campaign (CCP)
<http://www.iclei.org/projserv.htm#ccp>

The City of Portland, Office of Sustainable Development
<http://www.sustainableportland.org/>

California CO2 Tailpipe Bill
http://www.leginfo.ca.gov/pub/01-02/bill/asm/ab_1451-1500/ab_1493_bill_20020722_chaptered.html

Massachusetts Power Plant Emissions Standards
<http://www.state.ma.us/dep/bwp/daqc/files/regs/729final.doc>

New Hampshire House Bill 284
<http://www.gencourt.state.nh.us/legislation/2002/HB0284.html>

Oregon CO2 Standards for New Energy Facilities
<http://www.energy.state.or.us>

Pew Center for Climate Change has in-depth studies of the issue, resources, and innovative ideas
http://www.pewclimate.org/what_s_being_done/in_the_states/



* **Additional Reading**

Center for Clean Air Policy, "State and Local Climate Change Policy Actions," October 11, 2002
<http://ccap.org>

Rabe, Barry, "Greenhouse & Statehouse: The Evolving State Government Role in Climate Change," Prepared for the Pew Center on Global Climate Change, November 2002
http://www.pewclimate.org/global-warming-in-depth/all_reports/greenhouse_and_statehouse/index.cfm

Inside the Greenhouse, Summer 2002, EPA-430-N-02-004
<http://www.epa.gov/globalwarming/greenhouse/>

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FARMING WIND

Wind power was the fastest growing source of worldwide electricity generation over the last decade and potentially can supply up to 10 percent of the world's energy by the year 2017. With large, untapped wind energy resources nationwide and declining wind energy costs, federal, state, and local officials are accelerating the progress of wind technology aggressively. In 2003, 28 states supplied 4,685 megawatts of clean wind power—enough energy to serve nearly three million homes. According to the U.S. Department of Energy, all of our energy needs could be met by harnessing the wind in Texas or the Dakotas alone. Increased reliance on wind power can reduce our dependence on foreign oil, create new jobs, foster economic growth, and improve environmental quality.

Much of the nation's untapped wind power is in economically beset heartland farm states. According to the American Wind Energy Association (AWEA), a 250-acre farm can generate up to \$14,000 a year in extra income from wind power leases and royalties, while idling fewer than three acres from crop production. In addition to benefiting farmers and ranchers directly, wind power can create construction and maintenance jobs, expand local tax bases, and save public and private dollars that would otherwise be spent on fossil fuels from faraway sources, the AWEA notes.

Iowa's Spirit Lake School District is a case in point. A wind turbine there, the idea of a school board member who was watching a football game on a blustery day, is saving the district \$26,000 in energy costs annually.

Indeed, Iowa is quickly becoming a bellwether in the field of wind power. Recently, Gov. Tom Vilsack signed legislation clearing the way for the MidAmerican Energy Co. to develop a 310-megawatt wind farm in the state—the largest such land-based facility in the world. Iowa now has more than 400 wind turbines with a combined capacity to generate 422 megawatts of electricity—enough power to serve more than 100,000 homes per year. When complete, the \$323 million MidAmerican project will add between 180 to 200 turbines to the state.

Iowa is well positioned to reap the benefit of wind energy. According to the U.S. Department of Energy, only Texas and California exceed it in terms of capacity to harness substantial megawatts of wind power. Iowa is already the Midwest's biggest producer of wind-powered electricity, followed by Minnesota, which produces 336 megawatts per year. In contrast, North and South Dakota—often dubbed the Saudi Arabia of wind—together produce about nine megawatts of wind power per year.

Much of the impetus for the state's wind energy projects comes from Iowa's Alternate Energy Production Law, a 1983 measure that required the state's investor-owned utilities to purchase 105 megawatts (averaged) of electricity from renewable energy projects. The law, however, lacked enforcement provisions, and utilities delayed complying with it for years and sought its repeal.

Concerned about the situation, in 1995 state environmental and other groups formed a coalition called Sustainable Energy for Economic Development (SEED) to build political support for renewable energy. In 1996, SEED persuaded lawmakers to pass a bill strengthening the 1983 law. State energy regulators subsequently

PPI PLAY

Using state programs to illustrate the combined potential for clean energy and economic development

WHERE IT'S WORKING

Iowa and 27 other states

PLAYERS

State and local officials

PPIONLINE.ORG KEYWORDS

"PPI Farming Wind Play"

"This legislation will help put Iowa well on our way to reaching the goal of becoming energy independent and producing 1,000 megawatts of renewable energy per year by the end of the decade."

—Gov. Tom Vilsack, Iowa

set February 9, 1997 as the deadline for utilities to sign contracts with renewable energy developers. Utilities have seized upon the state's plentiful wind supply as a way to satisfy their obligations.

In his January 2003 State of the State Address, Vilsack urged lawmakers to embrace his goal of boosting energy production from renewable sources in the state from 200 to 1,000 megawatts per year by the end of the decade, with the aim of making Iowa a net energy exporter. The state now imports nearly all of its energy from out of state at a cost of more than \$4 billion annually. "We need to keep that money in Iowa," the governor said in a March 2003 press statement. "The economic benefits could be substantial."

According to a member of his staff, Vilsack laid the groundwork for the new wind energy project years earlier by reaching out to Republican lawmakers and to the chief executives of Iowa's two investor-owned utilities during debate over energy industry restructuring legislation. "We were very engaged and inclusive and developed multiple relationships on a personal level," the aide recalls. Vilsack and the executives "got to know one another and developed a trusting relationship about working together." When MidAmerican subsequently came forward with its proposal to develop the massive wind farm, "their business plan and the governor's vision to become a net energy exporter all fit together," the aide said. "And we clicked."

Before moving forward with its plan, MidAmerican requested legislation that would qualify it for state renewable energy tax credits for building and owning its own wind turbines. Then-existing law awarded the credits only to companies that bought renewable energy from third parties, such as farmers or small businesses with turbines on their property. In exchange for the new law, MidAmerican agreed to freeze its electric rates through 2010.

The state has also created several organizations to help finance wind energy projects, including the Iowa Energy Center and its Alternate Energy Revolving Loan Program (AERLP) as well as the Energy Bank.

Created by the legislature in 1996, AERLP promotes the development of renewable energy production facilities in the state. Managed by the Energy Center, the \$5.9 million dollar loan program is funded by fees collected from Iowa's investor-owned utilities.

The Iowa Energy Bank, meanwhile, promotes wind power by funding energy-efficiency improvements in public and private schools and colleges, hospitals, and local government. Administered by the state Department of Natural Resources, the bank uses energy cost savings to repay financing for wind turbines and other energy management steps. The bank has helped six school districts fund the installation of turbines.

Iowa also receives funding from the U.S. Department of Energy for its wind energy efforts, such as a recent study on ways to mate turbines with solar arrays, biodiesel generators, and other power sources for inevitable days when the wind is too calm to meet the demand for energy.

Iowa has the ability to produce nearly five times its own annual electrical consumption through wind power. If its wind power efforts continue to expand, it could one day become an exporter of electricity to energy-starved Midwestern states. Declining capital costs, technological advances, and sound public policy are combining to make wind power Iowa's fastest growing renewable resource.

Resources for Action

Iowa's Alternate Energy Production Law
<http://www.newrules.org/electricity/rmandatelA.html>

Iowa's Department of Natural Resources Wind Energy Site
<http://www.state.ia.us/dnr/energy/programs/wind/index.htm>



Spirit Lake School District Wind Energy Program
<http://www.spirit-lake.k12.ia.us/dist/bg/wind%20generation.htm>

Iowa Renewable Energy Association
<http://www.irenew.org/>

Iowa Energy Bank Program
<http://www.state.ia.us/dnr/energy/programs/bem/ebank/leg.htm>

Sustainable Energy for Economic Development (SEED)
<http://yawp.com/ican/seed.html>

U.S. Department of Energy Wind Powering America Initiative
<http://www.eere.energy.gov/windpoweringamerica/>

* Additional Reading

Iowa's Wind Hybrid Electricity Applications Study
<http://www.state.ia.us/dnr/energy/pubs/whea/index.htm>

American Wind Energy Association's Summary of Iowa Projects
<http://www.awea.org/projects/iowa.html>

Wind Energy Atlas of the USA
<http://rredc.nrel.gov/wind/pubs/atlas/>

Wind Energy FAQ
<http://www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF>

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CARBON CASH CROP

Most policies to combat climate change focus on stemming carbon dioxide and other greenhouse gas emissions. Lesser-known efforts are “sequestration” measures—activities that keep carbon and other substances implicated in climate change in the ground and out of the upper atmosphere.

According to the U.S. Department of Agriculture, major agricultural states can potentially sequester more than 8 percent of the 1.9 billion metric tons of greenhouse gas emitted in the United States annually. The Consortium for Agricultural Soils Mitigation of Greenhouse Gases, made up of nine U.S. universities and the Batelle-Pacific Northwest National Laboratory, says the figure could climb to 20 percent if farms adopt sequestration practices widely.

Experts say the key is integrating sequestration activities into a market-based “cap-and-trade” approach to reducing greenhouse gasses. Under the approach, government would put a cap on emissions and issue emission permits equal to that level to companies and other greenhouse gas producers. Businesses that excel at cutting their emissions could sell their excess permits on a commodity market to other businesses that need them. Companies could also buy emission credits from farmers and foresters who sequester carbon through improved land-management practices.

“No-till” farming, for example, reduces the release of carbon dioxide from decaying plant material by starting new crops amid the residue of the last year’s harvest. Currently, about 20 percent of the country’s cropland—roughly 55 million planted acres—is no-till, according to the Core 4 Conservation Alliance, a partnership of farmer organizations, agribusinesses, government agencies, and universities. Other sequestration practices include conversion of marginal farmland to grassland and substituting biomass and energy crops for fossil fuels.

In most cases, sequestration practices do more than just help fight climate change. Increasing soil’s organic content through carbon storage helps boost its productivity. No-till farming and conversion of marginal lands also stems soil erosion and improves air and water quality.

According to Richard Sandor, a Northwestern University expert on cap-and-trade policies and head of the new Chicago Climate Exchange, even using the conservative estimate that carbon will trade for \$20 to \$30 per ton, “paying farmers to sequester 200 million metric tons of carbon per year could add \$4 billion to \$6 billion of gross income to the farm economy—and possibly up to 10 percent of typical net farm income.” Carbon markets, he adds, can also “soften farm income cycles by taking land out of crop production and putting it into conservation uses when relative prices favor carbon sequestering over food production.”

Several bills now before Congress would recognize and reward sequestration activities. They include the Climate Stewardship Act of 2003 (S. 139) introduced by Sens. Joseph I. Lieberman (D-Conn.) and John McCain (R-Ariz.) and the Clean Air Planning Act (S. 843) sponsored by Sens. Thomas Carper (D-Del.), Lincoln D. Chafee (R-R.I.), and Judd Gregg (R-N.H.).

Nebraska is among the growing number of farm states to recognize sequestration’s benefits. According to the state’s Department of Natural Resources (DNR), cropland management practices there now help sequester about 1.7 million metric tons of carbon per year (roughly .09 percent of total U.S. emissions). That figure could increase to 2.3 million metric tons (or 0.12 percent of U.S. emissions) if all Nebraska cropland is made no-till.

PPI PLAY

Encouraging farmers to adopt practices that offset greenhouse gas emissions

WHERE IT’S WORKING

Nebraska, Illinois, Oklahoma, and Wyoming. Proposed in Idaho and South Dakota.

PLAYERS

State officials, private landowners, public universities

PPIONLINE.ORG KEYWORDS

“PPI Carbon Cash Crop Play”

In 2000, Nebraska's unicameral legislature passed the nation's first law explicitly designed to promote sequestration. L.B. 957 established a Carbon Sequestration Advisory Committee comprised of representatives from agriculture, energy, academia, and state government. The law directed the committee to assess sequestration's economic and environmental benefits. It published its findings in a report released by the state Department of Natural Resources (DNR) in 2001.

Among its findings, the committee recommended a demonstration project to help landowners assess their cropland's carbon storage potential. State-commissioned researchers at Colorado State University and the U.S. Department of Agriculture used a computer model to develop statewide carbon sequestration estimates, broken out for various land use and management practices. The data will help farmers and ranchers manage their land better to sequester carbon. The report also includes a section by researchers at the University of Nebraska Public Policy Center discussing laws and policies needed to support such efforts.

The task force also called for monitoring and verification measures to help ensure that a ton of carbon sequestered by a farmer is really equivalent to a ton of carbon emitted by a company. To help refine how sequestration activities are measured, the committee called on the state to conduct a greenhouse gas inventory to identify major emission sources and create a baseline for reduction strategies. According to the U.S. Environmental Protection Agency, 38 states and Puerto Rico have already completed such inventories and two others have inventories in progress (see "PPI Greenhouse Gas Play").

Funding for Nebraska's sequestration efforts comes in part from the state's Environmental Trust Fund, established in 1992 to conserve, enhance, and restore the state's natural environments. Most of the trust fund's monies are derived from state lottery proceeds.

According to University of Michigan Professor Barry G. Rabe, who studies state carbon-control policies, the Nebraska law is rooted in an Ohio conference attended by members of the Nebraska Agricultural Policy Task Force. During the conference, presenter John Brenner of Colorado State University singled out Nebraska's potential to sequester carbon. Doubting they could sell the concept of climate change to skeptical farmers back home, task force members decided to host a similar conference in Nebraska. To drive their point home, they invited Brenner to restate his case. His presentation helped sway enough skeptics to build support for the bill, which was sponsored by former state Sen. Merton "Cap" Dierks and signed by Gov. Mike Johannes.

Since then, Illinois, North Dakota, Oklahoma, and Wyoming have passed what Rabe calls "strikingly similar" versions of the Nebraska bill. Versions have also been introduced in the Idaho and South Dakota legislatures.

Progress in Nebraska has slowed, however, due to its severe budget shortfall, its pressing need to deal with the consequences of prolonged drought, and turnover in the legislature and state bureaucracy.

Launching a sequestration pilot project is the next logical step in the state's efforts. Sequestration supporters say the state might have made more headway by now if Nebraska's financial situation were not so desperate. The dry spell has only compounded the problem. Applications for federal and private grants to help start the project are pending. Turnover among Nebraska officeholders has also slowed the project's momentum. Dierks, L.B. 957's sponsor, lost his re-election bid last November, and the terms of the members of the Nebraska Carbon Sequestration Advisory Committee expired last year.

Washington's reluctance to address climate change is also slowing progress in Nebraska and other states. Until Congress passes legislation to make carbon control mandatory, farmers and ranchers will be unable to fully realize the value of sequestration. Pending such action, programs such as Nebraska's are helping to transform carbon into a viable cash crop in the heartland.

* Resources for Action

Nebraska Legislative Bill 957

http://srvwww.unicam.state.ne.us/pdfs/XCVI/intro/INTRO_LB957.pdf

Nebraska Carbon Sequestration Advisory Committee

<http://www.carbon.unl.edu/>



University of Nebraska Public Policy Center's Carbon Sequestration Project
<http://ppc.unl.edu/>

Nebraska Department of Natural Resources, Planning and Assistance Division
<http://www.dnr.state.ne.us/docs/compplan.html>

Consortium for Agricultural Soils Mitigation of Greenhouse Gases
<http://www.casmgs.colostate.edu/>

Climate Stewardship Act of 2003 (S. 139)
<http://thomas.loc.gov/>

Clean Air Planning Act of 2003 (S. 843)
<http://thomas.loc.gov/>

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<http://www.nrc.state.ne.us/Carbon/CarbonSequestrationFinal.pdf>

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http://www.pewclimate.org/global-warming-in-depth/all_reports/greenhouse_and_statehouse/index.cfm

Sandor, Richard L. and Jerry R. Skees, "Creating a Market for Carbon Emissions Opportunities for U.S. Farmers," *Choices* (Magazine of the American Agricultural Economics Association), First Quarter 1999, p. 13
<http://www.envifi.com/Bios/Choices.htm>

Conservation for Agriculture's Future, "1990-2002 Conservation Tillage Trends"
<http://www.ctic.purdue.edu/Core4/CT/CTSsurvey/NationalData.html>

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Trimming State Energy Use

Tight budgets and a weak economy have state and local governments everywhere searching for ways to squeeze the most out of every taxpayer dollar they spend. At the same time, state and local leaders continue to seek ways to protect the environment—and in the arid West, to conserve water—through energy efficiency. A new law in Arizona aims squarely at all three goals.

Under the leadership of Gov. Janet Napolitano, Arizona legislators passed a bill in April 2003 aimed at cutting the state government's energy consumption significantly over the next decade. H.B. 2324, which dovetails with Napolitano's Efficiency Review (ER) initiative to improve state government performance, requires the state's Administration and Transportation Departments and Arizona's universities and community colleges to cut their energy use by 10 percent below 2001-2002 levels by July 2008 and by 15 percent by July 2011. The new law also requires the agencies and higher education institutions to buy only federal "Energy Star" compliant products or others certified under the Federal Energy Management Program, and to adhere to the International Energy Conservation Code in new construction. The measure is expected to carve about \$90 million off the state's energy bills.

H.B. 2324 builds on energy efficiency steps taken under Arizona's Smart Energy campaign, which was prompted by the rolling blackouts that plagued neighboring California in 2001. State agencies, for example, were ordered that summer to set their thermostats up two degrees, reducing energy usage from 7 percent to 10 percent, and saving the state an estimated \$115,000. New energy conservation measures will include installing sensors that turn off lights in empty rooms, replacing light fixtures with more energy-saving models, and squeezing even more efficiency out of air conditioners in summer months.

The new law's proponents expect that state agencies and schools will enlist energy service companies (ESCOs) to help them devise and implement energy savings projects. ESCOs are businesses that develop, install, and finance projects to improve energy efficiency and cut operating costs. Over time, the projects pay for themselves in the form of lower energy bills.

Momentum to pass the law began to build during the summer of 2002, amid in-depth legislative studies on energy efficiency and renewable energy. Jeff Schlegel of the Southwest Energy Efficiency

PPI PLAY

Using energy-wise programs to save taxpayer dollars, protect the environment, and conserve water

WHERE IT'S WORKING

Arizona

PLAYERS

State agencies, nonprofit organizations, and energy service companies (ESCOs)

PPI ONLINE.ORG KEYWORDS

"PPI Trimming Energy Use Play"

"This bill represents a significant step in the direction of greater energy efficiency and thus lower energy costs for the state and its taxpayers, lower pollutant emissions, and less water consumption by power plants."

—Jeff Schlegel, Southwest Energy Efficiency Project (SWEET)

Project (SWEEP), a public interest group that promotes energy efficiency in the rapidly growing Southwest, worked with Arizona Rep. Randy Graf, the bill's chief sponsor, to rally support for the measure.

“This bill represents a significant step in the direction of greater energy efficiency and thus lower energy costs for the state and its taxpayers, lower pollutant emissions, and less water consumption by power plants,” Schlegel says. Both he and Graf say they hope the law will spur similar energy-saving activity in the residential, commercial, and industrial sectors. A new SWEEP study released in August 2003 found that making new homes and commercial buildings in the Southwest more energy efficient could save potentially 19 billion kilowatts of electricity and 60 billion cubic feet of natural gas per year by 2020, adding up to net cost savings of \$8.4 billion for consumers and businesses.

* Resources for Action

Arizona Gov. Janet Napolitano's Efficiency Review (ER) website
<http://www.governor.state.az.us/er/er.htm>

Arizona's Smart Energy Usage Program
<http://www.commerce.state.az.us/Energy/smartenergyusage.htm>

Southwest Energy Efficiency Project (SWEEP)
<http://www.swenergy.org/>

U.S. Environmental Protection Agency's Energy Star program
<http://www.energystar.gov/>

* Additional Reading

Text of Arizona H.B. 2324
http://www.swenergy.org/legislation/arizona/HB2324_bill_text.pdf

“Increasing Energy Efficiency in New Buildings in the Southwest: Energy Codes and Best Practices”
<http://www.swenergy.org/ieenb/index.html>

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Driving Down Carbon Dioxide

One-third of all the carbon dioxide that enters the atmosphere in the United States comes from our transportation sector. And two-thirds of those greenhouse gas emissions, in turn, come from cars and trucks. The average passenger car emits about one pound of carbon dioxide (CO₂) for every mile traveled.

Efforts to lessen transportation's role in global climate change have focused largely on making vehicles more fuel-efficient and the fuel they run on cleaner. The problem is that Americans spend more and more time behind the wheel every year. As the Center for Clean Air Policy warns, growth in vehicle-miles-traveled in the United States "has outpaced population growth and is projected to continue to outstrip improvements in vehicle efficiency." Sprawling residential and commercial development is the chief problem. For many Americans, cars are the most practical, and often the only way, to get to work, stores, or grandmother's house for the holidays.

In recent years, Baltimore, Atlanta, and other cities have embraced "smart growth" development practices that reduce residents' need to drive. By building housing in closer proximity to jobs, stores, and entertainment, and by expanding transportation options, they have improved the quality of life for their citizens and cut the vehicle emissions that cause smog. Now cities are beginning to recognize that those same policies and practices can be equally useful tools to fight global climate change.

Portland, Oregon, is on the cutting edge of this trend. In 1993, it pledged to cut by 2010 its carbon dioxide emissions by 10 percent below 1990 levels, as a founding member of the Cities for Climate Protection Campaign sponsored by the International Council for Local Environmental Initiatives. Some 500 local governments worldwide have joined the campaign so far. Most are pursuing their goals through a mix of policies to reduce energy consumption. But a few have explicitly looked to smart growth as a way to reduce carbon dioxide emissions as Portland has.

Portland's efforts are rooted in Oregon's strong land-use policies. During the 1970s, the state adopted some of the country's toughest requirements governing local land use, comprehensive planning, and growth management. A decade later, protests erupted over plans to construct a new freeway on Portland's western flank. Community organizations formed a Land Use, Transportation, and Air Quality project (LUTRAQ) to identify and evaluate alternatives to car travel. The groups recommended light rail, the development of more pedestrian-friendly streets, and other options that together had the potential to reduce vehicle-miles-traveled in the region by as much as 8 percent.

PPI PLAY

Using "smart growth" to combat climate change

WHERE IT'S WORKING

Portland, Oregon

PLAYERS

Municipal elected officials, city and transportation planners, climate policy analysts

PPIONLINE.ORG KEYWORDS

"PPI Smart Growth Play"

Growth in vehicle-miles-traveled in the United States "has outpaced population growth and is projected to continue to outstrip improvements in vehicle efficiency."

—The Center for Clean Air Policy

In the years since, the city has built the light rail system and worked on regional strategies to give commuters other viable alternatives to auto travel. Planners estimate that the rail system eliminated the need to construct eight new proposed parking garages and add additional lanes to major highways. Meanwhile, acting in concert with the state's land-use policies, Portland has championed regional efforts to channel new construction away from outlying open spaces and toward existing development.

Although metropolitan Portland's population soared by 20 percent between 1990 and 2000, and vehicle-miles-traveled in the region rose by 34 percent, per-capita greenhouse gas (GHG) emissions in the region dropped nearly 7 percent. Planners attribute at least part of the emissions decline to more compact regional development and expanded transportation options. For example, ridership on the light rail system grew by 50 percent over the course of the decade.

Building on these successes, city planners in the region have incorporated the original LUTRAQ agenda into Metro Region 2040—a new comprehensive growth-management strategy for 24 cities and urbanized portions of three counties in metropolitan Portland. The strategy is designed to direct new development toward areas where public transportation exists. One goal is to cut per-capita vehicle-miles-traveled in the metro area by 10 percent below 1995 levels by 2010. Toward this end, the strategy funds efforts to promote greater use of carpools, bicycles, and shuttles. Plans are underway for more alternatives to car travel, including streetcars. These programs are funded through federal clean air and transportation programs and administered by the metro regional government, which also administers the region's light rail system.

While Portland's efforts to apply smart growth strategies to curb GHG emissions are working, they remain the exception to the rule. By highlighting such efforts, policy advocates can introduce a broader array of local and elected officials to this promising set of tools in the fight against climate change.

* Resources for Action

Metro Regional Center (metropolitan Portland, Oregon, regional government)
<http://www.metro-region.org>

International Council for Local Environmental Initiatives
<http://www.iclei.org/us/ccp/>

Smart Growth Online (a service of the Smart Growth Leadership Network)
<http://smartgrowth.org/>

The LUTRAQ Project
<http://www.friends.org/resources/lutraq.html>

U.S. Department of Transportation's Center for Climate Change and Environmental Forecasting
<http://climate.volpe.dot.gov/>

Center for Clean Air Policy
<http://www.ccap.org/>

* Additional Reading

Portland's Global Warming Reduction Strategy
<http://www.sustainableportland.org/GW%20Reduction%20Strategy.pdf>



Backgrounder on Portland's climate change efforts
http://www.sustainableportland.org/stp_Ptld_climate_sum_2003.pdf

Backgrounder on Oregon's land use policies
<http://www.lcd.state.or.us/messdir/chinaspeech.PDF>

Sustainable Communities Network's Oregon case studies
http://www.sustainable.org/casestudies/oregon/OR_index.html

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Growing Greener Gardens

While some say the West was won through sheer grit and determination, water is the real source of the region's growth and prosperity. "Water," according to the U.S. Department of the Interior, "is the lifeblood of the American West and the foundation of its economy." But in some parts of the arid West, existing water supplies are already inadequate to meet the needs of people, agriculture, and the environment. Periodic droughts and explosive, long-term population growth in desert cities threaten to make the problem worse. Water's critical role in food and fiber production from western farms and ranches is increasingly fueling conflicts among states, cities, and water management districts over water's many competing uses.

More effective, efficient pricing strategies can improve allocation of this precious resource. But conservation also must be part of the equation, particularly when it comes to landscaping. In major western cities, landscape watering and other outdoor uses guzzles 50 percent to 70 percent of the water used. In Las Vegas, that rate can soar to 90 percent during the city's scorching summers. Water planners are quick to point out that letting the front yard go to seed is not the solution. On the other extreme, strict regulation would antagonize private landowners and burden local jurisdictions with the extra costs involved in policing homeowners who turn on the tap when they shouldn't.

Fortunately, there is a compromise that saves water, energy, and, eventually, time spent working in the yard. "Xeriscape" (a trademarked term that combines the Greek word *xeros*, meaning dry, with the English word *landscape*) encompasses water-saving practices that keep gardens in bloom while reducing outdoor water use anywhere from 30 percent to 60 percent. Done well, it can raise property values by up to 15 percent.

The definition of Xeriscape shouldn't be taken too literally; it means anything but rock-strewn hardpan devoid of vegetation. Proponents say a properly-designed Xeriscape is "lush, colorful, and easy-to-care-for." According to Denver Water, the city's municipal water district and developer of the concept, "rather than a specific look or limited group of plants, Xeriscape is simply a set of seven simple principles to conserve water through simple but smarter landscaping practices." Those principles are: planning and designing, limiting turf areas, selecting and zoning plants appropriately, improving the soil, using mulches, irrigating efficiently, and performing appropriate maintenance.

At its heart, Xeriscape helps homeowners, businesses, and landscapers plant and maintain shrubs, flowers, and lawns that are more suited to local soil and climate conditions. Efficient irrigation, such as watering at night instead of during the heat of the day and using properly designed hoses and sprinklers, are crucial Xeriscape concepts. Proper weeding, mowing, pruning, and fertilization can also help decrease water use.

The practice grew from a task force of water, horticultural, and landscaping experts assembled by Denver Water in 1981 to extend existing water supplies to meet future demands. The group set out to demonstrate that it was possible to plant beautiful gardens and sow lawns that needed significantly

PPI PLAY

"Xeriscape" landscaping to reduce water use and polluted run-off, and enhance property values

WHERE IT'S WORKING

Atlanta, Denver, Las Vegas, the San Francisco Bay area, and nearly all 50 states

PLAYERS

Water planners and suppliers, landscape professionals, homeowners, businesses

PPIONLINE.ORG KEYWORDS

"PPI Xeriscape Play"

less water. Through a combination of land donated by Denver Water and contributions from 55 landscape businesses, the task force designed and planted the nation's first demonstration garden in 1982, at a total cost of \$55,000. From there, the concept spread regionally, then nationally, and eventually abroad. Even comparatively wetter states along the Eastern Seaboard have embraced the concept as a way to save water and prevent yard waste and pesticides from contaminating watersheds. By the early 1990s, Xeriscape programs were flourishing in nearly all 50 states, including Hawaii. By the end of the decade, the practice had spread from Saskatchewan to Spain.

Cities and water departments have been the main champions of Xeriscape programs. Most programs aim to promote wiser water use through one of the least costly yet most effective policy tools available: public information. In most cases, homeowners and landscapers plant water-guzzling gardens because they are unaware of water-saving alternatives. Many cities have Xeriscape information pages on their websites. Others mail monthly newsletters on the topic to interested households. Some also provide outreach and technical assistance. For instance, since the early 1990s, Atlanta's Bureau of Water has sent student interns each summer to advise homeowners on how to implement basic Xeriscape principles. Atlanta's program also provides homeowners with water conservation literature.

A growing number of nongovernmental organizations are also springing up to supplement public Xeriscape programs. Denver Water's Xeriscape effort eventually blossomed into Xeriscape Colorado!, Inc., an organization that promotes the concept and provides information on all aspects of water-wise gardening. Neighboring New Mexico formed a nonprofit Xeriscape Council in 1987 after a group of landscape and water professionals attended a Xeriscape conference in Los Alamos. Such organizations also often sponsor conferences and water-conservation exhibits. Do-it-yourselfers can also find a growing number of Xeriscape books and videos in libraries and bookstores.

While many individuals have embraced Xeriscape out of concern for the environment, policy experts say even more would do so with the right financial incentives. More homeowners, they say, would change their gardening practices if they knew that doing so would cut their water bills significantly.

Las Vegas, for example, which derives much of its water from ever-shrinking Lake Mead, is both raising its water prices and actually paying customers one dollar for every square foot of grass they replace with drought-tolerant foliage. Under the Southern Nevada Water Authority's Water Smart Landscapes program, property owners can qualify for rebates by converting at least 400 square feet of their lawns to Xeriscapes, which when fully mature must cover at least one-half of their yard. The maximum rebate is \$50,000. Water authority officials say the program is so popular, they could wind up giving out as much as \$25 million in Xeriscape rebates this year.

Similar programs are popping up in coastal California. The East Bay Municipal Utility District, which serves parts of Alameda and Contra Costa counties, estimates that it has saved 860,000 gallons of water a day with a program that reviews commercial and industrial outdoor water use and partially reimburses companies for changing their landscaping to drought-tolerant plantings and upgrading their irrigation systems. Denver Water also offers its Xeriscape program as part of a broad array of water conservation measures, including irrigation schedules and incentives to companies that develop ways to improve landscape irrigation efficiency.

Recognizing that municipal water authorities lack funds to study the outcomes of Xeriscape programs, the U.S. Department of the Interior's Bureau of Reclamation has stepped up to fill the void. It recently launched a National Xeriscape Demonstration Program in partnership with Austin, Texas; Phoenix, Ariz.; Las Vegas, Nev.; Denver, Colo. and its environs; and Fargo, N.D. Program officials will analyze how much water Xeriscape landscaping saves on an annual and seasonal basis, the costs of implementing and retrofitting such landscaping, and what kinds of strategies, incentives, and promotions facilitate the adoption of Xeriscape landscaping. Results are expected in early 2004 and will be available on the bureau's website.



Although Xeriscape will not entirely solve the West's growing water needs, it is an easy and cost-effective way for local governments nationwide to help stretch one of our most precious natural resources and to help avert contentious water conflicts in years to come.

* Resources for Action

Conservation & Xeriscape

http://www.denverwater.org/cons_xeriscape/cons_xeriscapeframe.html

The Seven Xeriscape Fundamentals

<http://www.xeriscape.org/fundamentals.html>

Waterwise Xeriscape Program, City of Atlanta Bureau of Water

<http://apps.atlantaga.gov/citydir/water/Index.htm>

Water Smart Landscapes for Homeowners, Southern Nevada Water Authority

http://www.snwa.com/html/ws_landscapes.html

Irrigation Rebate Program, East Bay Municipal Utility District

http://www.ebmud.com/conserving_&_recycling/non_residential/irrigation_programs/default.htm

Xeriscape Program, Arizona Municipal Water Users Association

<http://www.amwua.org/conservation-xeriscape.htm>

National Xeriscape(tm) Demonstration Program, U.S. Department of the Interior

<http://www.usbr.gov/pmts/rivers/rsmgxeriscape.htm>

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"Xeriscape Plant Guide," Denver Water, American Water Works Association, and Fulcrum Publishing
Golden, CO: Fulcrum Publishing, 1996

http://www.fulcrum-gardening.com/html/xeriscape_plant_guide.html

Xeriscape - A Quiet Revolution, 1992 (video, 28 min.)

Produced by Denver Water and the Denver Museum of Natural History

Denver Water, 1600 W. 12th Ave., Denver, CO 80204

Denver Museum of Nature & Science

Denver Museum of Natural History

<http://www.dmns.org/>

Xeriscape Colorado!, Inc.

<http://www.xeriscape.org/>

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STATE GREENHOUSE GAS REGISTRIES

Policymakers seeking ways to combat global warming are beginning to adopt greenhouse gas registries. These vital new reporting programs enable emitters to voluntarily inventory and track progress in reducing emissions of greenhouse gases implicated in global warming. The idea behind the registries is that by helping participants quantify and register their emissions reductions, participating businesses, nonprofit organizations, municipalities, state agencies, and other entities will have more of the information they need to effectively combat emissions. Beyond ultimately reducing emissions linked to global warming, adopting registries allows participants to earn valuable credits for reductions they make before a mandatory system is established for trading greenhouse gas allowances. With better information about the sources of greenhouse gas, consumers will also be empowered to choose products created with less pollution.

To date, at least 11 states have registries up and running or have passed legislation to develop them. California, Illinois, Maryland, New Hampshire, New Jersey, New York, Oregon, Washington, and Wisconsin are among the states developing registries; Maine recently passed legislation instructing its Department of Environmental Protection to adopt rules to create a registry; and Texas has an executive order to establish a registry. In addition, New Jersey has a greenhouse gas component as part of its Open Market Trading Program.

Among these, the well-established Wisconsin and California registries best exemplify how government can provide the technical expertise and collaborative organization for private enterprise to voluntarily reduce emissions. Both voluntary registries foster emissions reductions and credit reductions made today under any future regulatory scheme. Wisconsin's registry is patterned after a nationwide program known as 1605(b), which the U.S. Department of Energy developed. The Wisconsin registry also builds on a 1993 state regulation requiring large emitters of carbon dioxide to report emissions. That state requirement helped pave the way for a law signed by then-Governor Tommy Thompson in 2000 to establish a registry encouraging firms to voluntarily report not only on projects that reduce greenhouse gases but other pollutants including mercury, volatile organic compounds, and particulate matter.

California's Climate Action Registry offers different examples of what works. Designed from a protocol developed by the World Resources Institute and the World Business Council for Sustainable Development, the registry is a public-private partnership administered by a nonprofit organization.

Participants in the California registry receive credits only for reductions made in their total emissions, eliminating the possibility that a firm will try to offset reductions made at one facility with increased emissions elsewhere. Participants must register the greenhouse gas emissions of all operations in California and are encouraged to report nationwide. To incentivize participants, the Climate Action Registry provides industry-specific protocols illustrating how to measure emissions, handle the data, and certify requirements. This is important, as participants inventory both gross emissions and productivity metrics of all direct greenhouse gas emissions as well as indirect emissions from electricity use.

As policymakers develop registries to track and verify emissions they should carefully consider ways to promote uniformity among states. Whereas some state registries record emissions reductions, others

PPI PLAY

Reporting greenhouse gas emissions as a way to promote reductions

WHERE IT'S WORKING

11 states across the country

PLAYERS

State officials, non-governmental organizations, industry

PPIONLINE.ORG KEYWORDS

"PPI Greenhouse Gas Play"

only cover emissions. Similarly, whereas some registries require reporting at the corporate level, others record reductions by project, although corporate-wide reporting is encouraged. Such variations from state to state potentially create administrative barriers to participation, and make it more difficult to accurately credit emissions reductions made before a mandatory trading system is created.

To improve uniformity and accuracy, innovative state policymakers are working with the Northeast States for Coordinated Air Use Management (NESCAUM) as well as with the U.S. Environmental Protection Agency, reporting companies, and other states and stakeholders. Such collaboration allows policymakers to learn from each other, streamline their efforts, give their states more time to accrue trading system credits, and ultimately get a head start improving air quality for residents.

* Resources For Action

California Climate Action Registry
<http://www.climateregistry.org>

Northeast States for Coordinated Air Use Management (NESCAUM), Greenhouse Gas State Registry Collaborative
<http://www.nescaum.org/Greenhouse/Registry/index.html>

Wisconsin's Voluntary Emission Reductions Registry
<http://www.dnr.state.wi.us/org/aw/air/hot/climchgcom/index.htm>

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http://www.pewclimate.org/global-warming-in-depth/all_reports/greenhouse_and_statehouse/index.cfm

Inside the Greenhouse, Summer 2002, EPA-430-N-02-004
<http://www.epa.gov/globalwarming/greenhouse/>

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BUILDING CLEAN CARS

To create a cleaner and more energy-secure future, the United States must build, use, and export world-class vehicles that are more fuel efficient and environmentally friendly. Hydrogen-powered fuel cells are a big part of the solution.

Unlike gasoline-powered engines, fuel cells use chemical reactions from hydrogen fuel and oxygen from the air to create electricity. They are two- to three-times as efficient as today's engines and have the potential to produce no harmful air emissions. In addition to reducing oil use, fuel-cell vehicles can conceivably *contribute* power to the electric grid when they are idle.

Despite such benefits, low fuel prices and a lack of government incentives have combined to discourage businesses from investing aggressively to develop and commercialize such technologies.

The federal government launched the FreedomCAR program in January 2002 to promote fuel-cell vehicles. States too are playing a key role in speeding their development. Currently, 24 states and the District of Columbia have fuel cell R&D incentives. California's Fuel Cell Partnership program (inspired, but not mandated, by the state's zero-emission vehicle requirements) is among the best known and most well-established.

Created by Gov. Gray Davis in 1999, the partnership has helped put the nation's first pilot fuel-cell sport utility vehicles (SUVs) on the road through a leasing program involving Honda, Toyota, the City of Los Angeles, and the University of California's Davis and Irvine campuses. The partnership plans to put fuel-cell-powered buses on the road in 2004.

New efforts in Michigan and Ohio to foster the next generation of automotive technologies are just as promising.

The auto industry provides more than 200,000 jobs and \$10 billion a year to Michigan's economy. To help ensure the state's continued leadership in the field, former Gov. John Engler last year announced the NextEnergy initiative, a set of measures designed to advance the understanding, research, development, commercialization, and manufacturing of alternative energy technologies. Similarly, Ohio Gov. Bob Taft recently unveiled a three-year, \$100 million initiative to promote fuel-cell R&D in his state.

The NextEnergy Center in Detroit is the Michigan project's focal point. "We hope to become the national hub for fuel-cell technology and research, taking the automotive industry to the next level," said Detroit Mayor Kwame Kilpatrick, who helped secure the center for his city, at groundbreaking ceremonies last December. Located at the Wayne State University Technology Park in the heart of the city, the center will develop educational programs in fuel-cell technology and related disciplines; provide companies in

PPI PLAY

Working in partnership with the private sector to develop technology for clean vehicles

WHERE IT'S WORKING

24 states and the District of Columbia

PLAYERS

State officials and business leaders from auto manufacturing, energy, and fuel-cell technology companies

PPI ONLINE.ORG KEYWORDS

"PPI Building Clean Cars Play"

"We hope to become the national hub for fuel-cell technology and research, taking the automotive industry to the next level."

—Mayor Kwame Kilpatrick, Detroit, Michigan

the field with lab and business-incubator space, marketing assessments, industry roundtables, and other support services; and serve as an information clearinghouse. As a further lure to business, the center was placed in one of Michigan's 10 new SmartZones—tax-advantaged districts designed to incubate technology-based businesses and jobs.

Like most states, financial shortfalls are constraining Michigan's ability to create new high-tech jobs. Fortunately, Sen. Debbie Stabenow and other members of Michigan's congressional delegation recently helped to secure \$2 million in funding for the NextEnergy project in legislation signed by President Bush earlier this year.

Doug Rothwell, president and chief executive officer of the Michigan Economic Development Corporation, sums up his state's initiative nicely. "Michigan has everything to lose and much to gain if we get out of the gate early and welcome this emerging industry," he says. "The NextEnergy plan opens the door to a whole new realm of tremendous opportunities for Michigan workers and the state's economy."

While Michigan is pursuing the development of fuel-cell and other promising new technologies largely through tax incentives, Ohio is spurring the development of such industries primarily by offering grants and subsidies.

As part of Gov. Taft's \$1.6 billion Third Frontier Project, Ohio will invest \$100 million over three years in the state's Fuel Cell Initiative, a program to support the state's nascent but growing industry of fuel-cell and advanced-material manufacturers. The initiative will fund three related sets of fuel-cell activities:

- ◆ \$75 million for low-interest loans and loan guarantees for capital investments and job-creation/retention;
- ◆ \$25 million for research, development, and demonstration of fuel cells; and
- ◆ \$3 million to train workers in the field of fuel-cell technology.

Of the \$75 million allocated to capital investments, up to \$15 million is set aside for traditional investments to expand the industry in Ohio. The other \$60 million can be used for tax-exempt financing of qualified, small-scale projects. All of the \$75 million can be used for acquisition of land, buildings, and equipment. The initiative has already awarded seven projects \$6.4 million to promote fuel-cell R&D.

Although it is far too early to tell how well Michigan and Ohio's new initiatives are working, they represent a promising way to preserve U.S. jobs in the auto industry, create new, high paying positions, and reduce smog and emissions implicated in global warming at the same time.

* Resources for Action

NextEnergy, Michigan
<http://www.nextenergy.org/>

NextEnergy Enabling Legislation
<http://www.nextenergy.org/020510NextEnergy.htm>

Ohio 1999 Electric Restructuring Act
<http://www.dsireusa.org/library/docs/incentives/OH05F.htm>

Ohio Fuel Cell Initiative
<http://www.connectohio.com/3rdfrontier/>
http://www.thirdfrontier.com/3rdfrontier/pdf/Fuel_Cell.pdf



Ohio Renewable Energy Financial Assistance Program
http://www.odod.state.oh.us/cdd/oeef/elf_Renewable.htm
<http://www.dsireusa.org/library/docs/incentives/OH05F.htm>

California Fuel Cell Partnership
<http://www.fuelcellpartnership.org/>

California's Zero Emission Vehicle Program
<http://www.arb.ca.gov/msprog/zevprog/zevprog.htm>

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TRADING IN CARBON FUTURES

Many state and local governments have launched efforts to fight global warming. But severe budget shortfalls and the lack of federal mandates and funds are making the job difficult. The newly formed Chicago Climate Exchange (CCX) is filling the breach through a combination of private sector, nonprofit, and government resources and expertise.

Last January, 13 of the nation's largest greenhouse gas emitters—including DuPont Co., American Electric Power Co., Ford Motor Co., and Motorola Inc.—joined with the city of Chicago to establish CCX. It marked the first time a large U.S. city and major companies made a binding, voluntary commitment to use a rules-based market to reduce carbon dioxide and other gases implicated in climate change. The participants pledged to reduce their emissions by 4 percent from an average of their 1998-2001 emissions, between 50 and 60 million tons, by 2006.

CCX is the brainchild of Richard Sandor, a Northwestern University expert on extending the principles of commodity trading to environmental protection. Funded through \$1.1 million in grants from the Chicago-based Joyce Foundation, the exchange is modeled on the U.S. Environmental Protection Agency's (EPA) Acid Rain Program, a "cap-and-trade" system to reduce electric utility emissions linked to acid rain.

Under such systems, government sets the total amount of pollution that can be emitted, typically below its historic or current level. It then issues allowances to emit that reduced amount and permits their sale on the open market. Companies able to control emissions cheaply can sell their leftover allowances to those that cannot. It is entirely up to firms to decide how they will cut pollution. They are required only to accurately measure and report their results and then submit allowances equal to their emissions at the end of a given time period.

The Acid Rain Program has created a \$5 billion annual market in emission allowances and has slashed sulfur dioxide emission levels, a chief culprit in acid rain. Trading on the CCX, which will take place on a computer network, is scheduled to begin shortly.

Although several proposals have been introduced in Congress to extend the philosophy behind the successful Acid Rain Program to the problem of global warming, the current climate in Washington suggests that lawmakers will not impose a mandatory cap on greenhouse gas emissions any time soon. As a result, commitments made by CCX participants are voluntary. Members that fail to meet their goals, however, will face sanctions imposed by corporate and public sector peers that participate in the exchange.

Like the participating companies, Chicago has much to gain from its involvement in the exchange. City government itself will buy and sell allowances, a step the city's Department of Environment says is justified because of its role as a greenhouse gas emitter and leading power consumer. Chicago draws roughly 10 percent of its energy from clean "renewable" fuels that do not release carbon and other

PPI PLAY

Working in partnership with the private sector, nonprofits, and cities to develop a greenhouse gas trading system

WHERE IT'S WORKING

Chicago

PLAYERS

Business leaders, and local officials

PPI ONLINE.ORG KEYWORDS
"PPI Carbon Futures Play"

"The day is long past when government stood on one side of environmental issues and private enterprise on the other. Now we understand that we share common interests."

— Mayor Richard M. Daley, Chicago, Ill.

greenhouse gases. The city hopes its participation in the exchange will give it an incentive to double its share of energy from clean sources by 2006.

While some environmental groups claim CCX is no substitute for a mandatory federal system, the exchange may set the stage for a federal program because it creates a market for carbon transactions. In doing so, the exchange will help reveal the price at which carbon should trade on the market.

The right to emit the equivalent of one metric ton of carbon dioxide now sells for \$3 to \$8, said Dr. Sandor. When the international Kyoto Protocol on climate change takes effect in those countries that have ratified it (Russia, for one, has yet to act), that price is expected to rise sharply. Most experts agree that greenhouse gases will become a major commodities market.

By helping to set prices, CCX hopes to attract other prospective participants to the program and provide much-needed experience for an eventual mandatory U.S. carbon trading program. At least 50 other potential participants have expressed interest in the program. Data from the marketplace also will help government officials set reasonable standards for greenhouse gas emissions

CCX will be patterned after the Chicago Board of Trade, the Chicago Mercantile Exchange, and other commodity exchanges. Initially, it will focus on regional efforts to stem greenhouse gasses and gradually expand to cover all of North America. The Midwest is a promising place to start: It accounts for nearly one-fifth of the U.S. economy and its mix of industries has a large carbon footprint. At the same time, Midwest farmers and foresters are well positioned to offset much of the country's greenhouse gas emissions through sequestration activities that keep carbon in the soil instead of releasing it into the atmosphere. Exchange participants can count such activities toward their emission limits. In other words, CCX can help the region's farmers and foresters convert carbon into a valuable cash crop (see "PPI Climate Change Play").

Mayor Richard Daley, who serves as the exchange's honorary chairman, says the initiative is a logical extension of activities historically based in the Windy City. "For years our financial exchanges have been a vital part of the local and national economy," he notes. The city hopes to generate excess carbon credits through such activities as retrofitting city-owned and managed properties to save more energy, purchasing a new fleet of hybrid vehicles, and meeting the mayor's goal of increasing the city's share of energy generated from clean renewable power sources. Chicago's participation in CCX is part of a comprehensive energy plan for ensuring an uninterrupted flow of energy to Chicagoans at reasonable prices while promoting new jobs—all without destroying the environment. "This is a good example," Daley says, "of the kind of innovation that will help us solve our energy and environmental problems."

* Resources for Action

Chicago Climate Exchange
<http://www.chicagoclimatex.com>

City of Chicago 2001 Energy Plan
<http://www.ci.chi.il.us/Environment/html/2001EnergyBook.pdf>

* Additional Reading

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http://www.ppionline.org/ppi_ci.cfm?knlgAreaID=116&subsecID=149&contentID=250562



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Carbon Cash Crop II

New international standards to fight global climate change are turning permits to emit carbon dioxide and other greenhouse gases into a valuable commodity. Markets to facilitate the buying and selling of these permits are already being created, and they are expected to include trade-in credits for sequestration activities—farming, forestry, and other land-management practices that keep carbon in the ground and out of the atmosphere.

These markets have tremendous potential to help our environment *and* the economy, especially in cash-strapped agricultural and rural states that have plenty of land to serve as “carbon sinks.” According to Northwestern University economist Richard Sandor, even using the conservative estimate that carbon will trade between \$20 and \$30 per ton on the open market, “paying farmers to sequester 200 million metric tons of carbon per year could add \$4 billion to \$6 billion of gross income to the farm economy—and possibly up to 10 percent of typical net farm income.”

The Kyoto Protocol represents these states’ best bet for cashing in on their carbon-storage potential. Under this international pact, which the Bush administration rejected and Russia has delayed implementing, most major developed nations agreed to cut their emission levels by 2012 to 95 percent of the amount they were emitting in 1990. Companies operating in signatory nations will have to meet their host countries’ respective caps either by reducing their own emissions or by buying emission allowances or sequestration credits on the open market—including, in theory, credits for sequestration activities in the United States. So, for example, a multinational firm with operations in Spain could help meet its obligations under the Spanish cap by buying credit for carbon sequestered on a Kansas farm or in an Idaho forest.

In 2004, the European Union will allocate emission credits to emitters in its member nations, with trading slated to begin in 2005. Here in the United States, close to two dozen of the nation’s largest greenhouse gas (GHG) emitters recently joined with the city of Chicago to establish the Chicago Climate Exchange for the trading of emission credits (see “PPI Carbon Futures Play”). The participants pledged to reduce their emissions by 4 percent based on an average of their 1998-2001 emissions, or roughly by 50 million to 60 million tons, by 2006.

Although the United States is not a participant in the international Kyoto process, several proposals to encourage carbon trading here would recognize sequestration activities. They include the Climate Stewardship Act of 2003 (S. 139) introduced by Sens. Joseph I. Lieberman (D-Conn.) and John McCain (R-Ariz.) and the Clean Air Planning Act (S. 843) sponsored by Sens. Thomas Carper (D-Del.), Lincoln D. Chafee (R-R.I.), and Judd Gregg (R-N.H.). But prospects for their quick passage are dim, particularly given the recent defeat of S. 139 in the Senate.

Several states have already begun positioning themselves to reap the economic benefits of trade in sequestration credits. In 2000, for example, Nebraska’s unicameral legislature created a Carbon Sequestration Advisory Committee comprised of representatives from agriculture, energy, academia, and state government

PPI PLAY

Encouraging farming, forestry, and other land-management and natural resources practices that offset greenhouse gas emissions

WHERE It’s WORKING

Alaska, Minnesota, Montana, Nebraska, New Mexico

PLAYERS

State officials, private companies, public interest groups, universities

PPIONLINE.ORG KEYWORDS

“PPI Carbon Cash Crop II Play”

to assess sequestration's economic and environmental benefits (see "PPI Carbon Cash Crop Play"). Progress there has slowed, however, due to the state's budget shortfall, the pressing need to deal with a prolonged drought, and turnover in the Legislature and state government.

Meanwhile, Alaska House Democratic Leader Ethan Berkowitz introduced legislation (H.B. 196) this year that would direct the state's Department of Natural Resources (DNR) to study how a sequestration-credit program could work in Alaska—and perhaps ease the state's \$800 million structural budget deficit. The state House passed the bill 35-1 and its Senate counterpart (S.B. 114) is now awaiting committee action in that body.

Specifically, Berkowitz's bill would create a 14-member gubernatorally appointed panel of experts to recommend ways to enhance Alaska's ability to participate in carbon trading systems, with an emphasis on policies that maximize economic benefits for private landowners. It would require the group to recommend how to verify that farming, forestry, and other land-management practices actually sequester carbon—a key to the success of any sequestration-credit trading system—and to suggest how public, private, or nonprofit entities could act as intermediaries for small landowners and businesses in carbon trading markets (for instance, by bundling their sequestered carbon for sale). The bill would also direct the state commissioner of natural resources to assess all public and private land in Alaska for past carbon sequestration and future sequestration potential.

Professors Bruce Larson of the University of British Columbia and Brad Gentry of Yale University prepared a preliminary analysis for the state's DNR that shows Alaska's carbon sequestration potential could be worth between \$400 million and \$500 million at current market rates.

Companies are already taking note. BP Exploration (Alaska) Inc., for example, is using a \$5 million federal grant to study how to use carbon dioxide captured from power plants and other combustion sources to increase oil production in "hard" Alaskan oil reserves. The captured GHG would be pumped deep into the earth to force oil up, with the gas remaining deep underground. It is a potential trifecta for the environment, the state, and the company: Less carbon would enter the atmosphere, the state would generate revenue through oil extraction taxes and the sale of sequestration credits, and BP would get help meeting its international obligations and voluntary goals GHG emissions.

"For us, this represents a significant opportunity," said Ronnie Chappell, a BP spokesman, in a 2001 interview with the *Alaska Journal of Commerce*. "If we can get the cost of removing the carbon dioxide (from power plants and other facilities that have substantial emissions) low enough, we can use it to enhance oil recovery."

Other states are moving to use forests and farmland to sequester carbon in conjunction with carbon trading markets. In 2001, a London-based environmental consulting company paid \$50,000 to the Confederated Salish and Kootenai Tribes of Montana to buy prospective carbon sequestration credits that will result from the reforestation of tribal land burned by forest fires in 1994. The buyer and seller of the credits were brought together by the Montana Carbon Offset Coalition, a nonprofit group created in the 1990s with support from the Montana Legislature. The coalition is a matchmaker that connects Montana landowners and communities that have carbon sequestration credits to sell with companies and others that need or want to lower GHG emissions. The \$50,000 investment by the British company Sustainable Forestry Management will cover the initial cost of reforestation, which, when complete, is expected to keep about 48,000 tons of carbon out of the atmosphere during the first 80 years of the agreement. At the end of that term, all carbon offsets will revert to the tribes. Carbon storage will be maintained on the site for at least 100 years.

In 1990, New Mexico lawmakers passed legislation requiring increased efforts to plant new trees throughout the state. Since the Forest Re-Leaf Program was started, more than 17,000 trees have been planted in more than 60 New Mexico communities, sequestering an estimated 139 metric tons of carbon dioxide annually.

In a similar vein, in January 1991 a working group representing Minnesota's DNR and pollution control agencies concluded that the state's forests already contained about 276 million tons of carbon and had the



potential to become a much larger carbon sink. By planting more trees and through better forest management practices, the group reported, it could be possible in the long term to increase the amount of carbon stored in the forests by 25 percent—an amount roughly equal “to fixing three years of annual emissions of carbon by the state,” according to a recent study by Professor Barry Rabe of the University of Michigan.

Berkowitz stresses the urgency for action: “Though the carbon credit market is growing, it is a limited market.” He notes that, “if Alaska fails to prepare now, we may miss this unique opportunity—and miss out on millions in revenue.” Implementing policies and creating institutions to capitalize on tomorrow’s carbon trading markets can give Alaska and other states an important competitive advantage, and help put their budgets back in the black.

* Resources for Action

U.S. Department of Energy’s Carbon Sequestration
<http://www.fossil.energy.gov/programs/sequestration/>

Alaska H.B. 196
http://www.legis.state.ak.us/basis/get_bill_text.asp?hsid=HB0196A&session=23

New Mexico’s Re-Leaf Statute
http://www.emnrd.state.nm.us/forestry/releaf/RELEAF_STATUTE_formchg.pdf

Nebraska Legislative Bill 957
http://srvwww.unicam.state.ne.us/pdfs/XCVI/intro/INTRO_LB957.pdf

Press release on Sustainable Forestry Management’s purchase of greenhouse gas emissions offsets from the Confederated Salish and Kootenai Tribes of Montana
http://www.envifi.com/News/sfm_SandK.htm

Climate Stewardship Act of 2003 (S. 139)
<http://thomas.loc.gov/>

Clean Air Planning Act of 2003 (S. 843)
<http://thomas.loc.gov/>

Chicago Climate Exchange
<http://www.chicagoclimatex.com/>

* Additional Reading

Rabe, Barry G., “Greenhouse & Statehouse: The Evolving State Government Role in Climate Change,” Prepared for the Pew Center on Global Climate Change, November 2002
http://www.pewclimate.org/global-warming-in-depth/all_reports/greenhouse_and_statehouse/index.cfm

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Regional Climate Change Actions

Many individual states have taken the lead in adopting policies within their borders to combat climate change (see “PPI Climate Change Play”). Recently, however, states have joined together to address climate change on a regional basis.

There are a number of reasons for this trend. First, states in a given region tend to share many of the same vulnerabilities to and concerns about climate change. Second, less regulated electricity markets mean that electricity—and carbon dioxide (CO₂) emissions that can result from its generation—may be produced in one state and shipped across state borders to several others. Similarly, cars and trucks—other large sources of emissions—can easily cross state lines. Such “leakage” potentially reduces the ability of individual states to effectively control greenhouse gas (GHG) emissions. Finally, regional approaches have the potential to reduce the cost of carbon control by pooling state expertise and state resources.

Regional approaches not only have the potential to lower the cost of combating climate change, they also have the ability to more accurately and fairly apply policies to key sources of emissions, with less fear of overlooking emissions sources that are in one state but affect another.

Spurred by the potential to save money and a desire to expand their impact across state lines, two regions—the Northeast (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island, New York, and New Jersey) and the West (California, Oregon, and Washington)—are actively working to address the challenge of reducing GHG emissions such as CO₂, one of the most prevalent GHGs.

At the heart of both efforts are greenhouse gas registries (see “PPI Greenhouse Gas Play”), since the first step to reducing greenhouse gases is knowing how to properly account for them. Additionally, a registry can help to jumpstart emissions reductions today, in advance of a federal regulatory system, by giving companies and organizations a benchmark to establish GHG emissions baselines against which any future mandates might be applied. Registries also provide data and currency needed to conduct any subsequent cap-and-trade regime.

Under a cap-and-trade system, emitters that have trouble meeting regulatory limits on emissions buy allowances from other emitters that can reduce greenhouse gases, thus helping to find the cheapest way to reduce overall emissions. Registries help make the market work because they signal to traders that a ton of carbon kept out of the atmosphere is really worth its weight in credits traded on the open market.

PPI PLAY

Regional coordination to better address the challenge of climate change

WHERE It's WORKING

Northeast and West Coast states

PLAYERS

Governors, legislators, utilities, business leaders, and environmentalists

PPI ONLINE.ORG KEYWORDS

“PPI Regional Climate Change Play”

“State leadership on a regional basis is going to have to fill the void in terms of demonstrating that we can achieve meaningful reductions in CO₂ emissions, even as we promote economic development.”

—Bradley Campbell, Commissioner, New Jersey Department of Environmental Protection

In 2001, California created the California Climate Action Registry (CCAR), a voluntary, non-profit registry organization for GHG emissions. The CCAR accepts voluntary reports of GHG emissions from a broad spectrum of participants, including utilities, businesses, industry, government agencies, educational institutions, nonprofit organizations, and other entities.

Beginning its operation in October 2002, the CCAR uses a reporting protocol based on the one developed by the World Resources Institute and the World Business Council for Sustainable Development, and requires third party certification of emissions. Among the most creative aspects of CCAR is its proprietary Climate Action Registry Reporting Online Tool (or CARROT). California hopes that the CARROT will become a national standard.

Because of its quality and ability to register reductions from a broad spectrum of participants, the California model is likely to become the underpinning of a regional approach in the Northeast. The Northeast States for Coordinated Air Use Management (NESCAUM) "State Registry Collaborative" is in the process of designing a registry for that region and is working closely with officials from the CCAR. As currently planned, the Northeast registry will use CARROT as its online reporting tool. The idea is that a company could use one data portal to register reductions in California as well as Northeast states.

On the West Coast, California, Oregon, and Washington recently announced another regional climate policy strategy. These states will undertake a regional inventory of GHG emissions by sector, and promote voluntary GHG emissions reduction policies focused on increasing energy efficiency and reducing emissions from the transportation sector. Big-rig trucks plying Interstate 5, which runs through Washington's Puget Sound region, Oregon's Willamette Valley, and California's Central Valley, are a likely target for controls, as are ships—a major source of smog and haze in Southern California.

These three states also may adopt a regional registry (presumably an expansion of the California registry to the other two states). They have invited other regional states, as well as Canadian and Mexican provinces, to join in these efforts.

Beyond their registry efforts, the Northeast states are working to develop the nation's first regional greenhouse gas trading program by April 2005. They will do so by imposing a cap on area power plant emissions of CO₂ (and possibly extending those requirements to other industrial sectors that emit it).

But a number of questions remain, including: how much CO₂ should be reduced; will power plants be able to offset their emissions through sequestration and other activities (see "PPI Carbon Cash Crop Play"); and should other potent greenhouse gases, such as methane, be included in the program. NESCAUM officials expect their registry would be the basis for any credit trading, although much is uncertain.

Another challenge is more political in nature. Several eastern states, led by Pennsylvania, are criticizing the way New York and New Jersey have portrayed the scope and commitment level of the regional effort.

Thus far, Wisconsin, Illinois, Delaware, Pennsylvania, and Maryland have indicated that they will be observers in the registry effort, and Maryland, Pennsylvania, and the Northeast Canadian provinces will participate only as "observers" in the emissions trading market's development.

Pennsylvania's reluctance to sign on to the plan is likely driven by the state's energy structure, which differs vastly from New York, New Jersey, and the states of the Northeast. Pennsylvania is powered by nearly 60 percent coal, while most other states in the agreement rely much more heavily on nuclear power, natural gas, and hydroelectric fuel sources, which emit far less CO₂.

It is unclear in what direction these other states will go. Some might establish a linked registry or even join the cap-and-trade program. There has been little discussion of a completely separate regional approach in an area such as the Midwest.



For policymakers, regional strategies, while potentially stronger than what any one state can do alone, still are a second best alternative to federal action. Because climate change is an environmental challenge that is global in scope—crossing not only state but national lines—much more significant progress could be made with a rigorous nationwide reporting and cap-and-trade system.

From a business standpoint, it is much less expensive and time consuming to deal with a single, federal program than to participate in and comply with multiple state and regional greenhouse gas regimes. From an economic perspective, larger emissions trading markets reduce more greenhouse gases at lower cost than markets that are more narrowly defined (in terms of geography, sectors, and gases).

Registries are essentially risk-management tools for businesses concerned about a future regulatory scheme that restricts carbon emissions. A regional approach reduces costs and further reduces risk. On the other hand, any registry that is voluntary and that does not become part of a cap-and-trade scheme will likely have limited impact on emissions. Therefore, the Northeast regional effort, wherein a registry system is potentially coupled with a mandatory cap-and-trade scheme, could signal the next step in the evolution of non-federal climate policy.

Given the generally aggressive nature of these states in the area of environmental protection, it is possible that the Northeast could prove to be the perfect “laboratory” for the testing of a true GHG cap-and-trade program, since national political dynamics do not yet seem ready for a federal cap-and-trade approach.

In the absence of federal leadership, these state and regional efforts represent real progress on climate change policy in the United States and demonstrate how business, advocates, and officials from all parties can come to agreement and address this critical issue in innovative and effective ways.

* Resources for Action

NESCAUM

<http://www.nescaum.org>

California Climate Registry

<http://www.climateregistry.org>

Center for Clean Air Policy

<http://www.ccap.org/>

World Resources Institute

<http://www.wri.org>

* Additional Reading

“Recommendations to Governor Pataki for Reducing New York State Greenhouse Gas Emissions,” Center for Clean Air Policy, in Collaboration with the New York Greenhouse Gas Task Force, April 2003

<http://www.ccap.org>

Olsen, David, “State Climate Change Initiatives: Creation of the California Climate Action Registry,” Institute for Policy Research & Implementation, University of Colorado at Denver, April 1, 2003

<http://thunder1.cudenver.edu/wirthchair/olsenpaper.PDF>

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Watershed Councils

The quality of America's waters has improved greatly since the passage of the federal Clean Water Act in 1972. Yet, in a congressionally mandated biennial water quality inventory for the EPA, states, tribes, territories, and interstate commissions reported in 2000 that 40 percent of our streams, 45 percent of our lakes, and 50 percent of our estuaries were too polluted to support such uses as fishing or swimming. The 1998 inventory found that the vast majority of Americans—more than 218 million people—lived within 10 miles of an impaired body of water.

Clean water is not just an amenity; it is vital to our economy. According to the EPA, nearly \$200 billion worth of food and fiber, \$60 billion of manufactured goods, and more than \$40 billion of tourism depend on clean water every year.

Our past water quality improvements were largely the result of regulation of so-called point sources—what most people envision as a pipe spewing waste into a river. But that picture doesn't square with the new reality. Today, nonpoint source pollution—fertilizers from farms and suburban lawns, oil from storm water runoff, sediment from construction sites, timber operations, or riverbanks trampled by livestock—is the nation's biggest water quality problem.

Our first-generation clean water laws and rules remain important weapons in our environmental protection arsenal. But they are a poor match for today's leading sources of water pollution and threats to aquatic species.

Today, governments, environmentalists, landowners, and ordinary citizens are overcoming their frequently sharp differences and forming voluntary watershed councils that identify water quality problems and threats to species, work to reach a consensus on how to address them, take corrective action, and monitor their efforts' progress.

The EPA and the national nonprofit River Network estimate there are more than 3,000 such voluntary, stakeholder-driven watershed councils across America today. Dozens of policy reports have been written about their good works, yet their successes are scattershot for the most part. Many operate in the absence of a strongly supportive state or regional policy framework, limiting their collective impact. Often financed through a patchwork of government grants and charitable donations, they wonder if the checks will keep coming when their funders' next grant cycles begin. Many lack paid full-time managers or staff to keep projects on track, provide scientific and professional expertise, and serve as the glue that keep councils together.

Oregon Secretary of State Bill Bradbury traces the state's innovative watershed health and salmon recovery effort to 1981, when as a first-term state representative, he won passage of a law authorizing funds for a voluntary effort to release millions of salmon fingerlings into streams.

Then, in 1987, Gov. Neil Goldschmidt created the Governor's Watershed Enhancement Board (GWEB), which promoted and financed watershed-enhancement demonstration projects and educational activities. GWEB helped get some of the state's first watershed councils off the ground.

By the early 1990s, the federal government was on the verge of listing coastal Coho salmon in the Pacific Northwest as threatened or endangered. Much of their habitat is located on private land. And as

PPI PLAY

Giving citizens the opportunity and responsibility to improve water quality and restore aquatic species in their communities

WHERE IT'S WORKING

3,000 communities across America, Oregon

PLAYERS

Ordinary citizens, private landowners, farmers, fishermen, foresters, ranchers, tribes, environmental activists, scientists, natural resources agencies at all levels of government

PPIONLINE.ORG KEYWORDS

"PPI Watershed Play"

Bradbury and others note, while federal regulators can prevent private landowners from engaging in activities that “take” (i.e., kill or injure) a listed salmon, they cannot force them to replace culverts, remove non-native plants, manage livestock differently, or otherwise aid in salmon’s recovery and the overall health of the watershed.

As state Senate majority leader in 1993, Bradbury says he and his colleagues in state government “recognized we needed a new approach that dealt with the entire watershed—the streams, stream banks, and uplands that feed the streams and affect water quality and salmon viability.” They also knew it was vital to enlist private property owners in the effort. The legislature responded by creating a \$10 million Watershed Health Program to further encourage the creation of watershed councils in the state. “It was basically a commitment to a multistakeholder approach—farmers, foresters, fishermen, environmentalists, people who live along the stream, working together to find ways to improve water quality and salmon habitat,” Bradbury says. “It’s a nonregulatory approach. There’s no stick, no law saying you have to have a watershed council.” The main incentive, he says, is a nagging fear of the unknown consequences of additional federal regulation under the Endangered Species Act.

The councils’ primary mission is to develop trust among landowners in a watershed and to help them collaborate on scientifically sound plans to restore salmon and improve water quality. For example, between 1993 and 1999, the Coquille Watershed Association in southwest Oregon, which was one of the first in the state and counts some 200 private landowners as members, had fenced in more than 200 miles of river and stream bank for the benefit of salmon and replanted a like amount with riparian vegetation. It had also repaired numerous roads and culverts to improve sediment runoff and fish passage.

In Washington County, a rapidly suburbanizing area west of Portland, the problem in the early 1990s was noncompliance with pollution standards under the Clean Water Act. According to State Rep. Jackie Dingfelder, a lawsuit by environmental groups against state water quality regulators was the main impetus for the formation of the Tualatin River Watershed Council. Dingfelder, then an environmental planning consultant, became the council’s first coordinator.

“The council was a way for farming, forest, and urban interests to come together to solve water quality and salmon issues,” Dingfelder says. “You had agricultural folks agreeing to adopt best-management practices like offsite livestock watering to reduce sediment from going into streams. On the urban side, it was a matter of controlling storm water runoff and building bioswales (grass-lined channels that filter pollutants) and holding ponds to treat it and limiting the amount of impervious ground surfaces. We did a huge amount of outreach and public education with homeowners on fertilizers and planting native plant species. It’s hard to say what the results are; this is a long-term effort. But there definitely has been improvement in the quality of water in the Tualatin River.”

In 1994, John A. Kitzhaber, a veteran state legislator and strong backer of the multistakeholder approach, was elected governor. In 1995, he directed all state natural resource agencies to develop a joint plan for restoring Oregon’s native coastal Coho salmon populations to sustainable levels, in part with the aim of preventing federal listing of the salmon as threatened or endangered. The plan, called the Oregon Coastal Salmon Restoration Initiative, strongly encouraged the formation of more watershed councils. Lawmakers that year also voted to make GWEB the hub of the state’s watershed health and salmon recovery effort, authorizing it to designate high-priority watersheds, articulate state watershed health priorities, and distribute funds to get more councils off the ground. Within two years more than 60 councils had been formed.

“At this point, the whole concept of locally driven action has been woven into the fabric of Oregon communities through the implementation of the watershed council movement. The Oregon Plan has become part of the state’s culture.”

—Jim Myron, Natural Resources Policy Advisor, Office of Gov. Ted Kulongoski (D-Ore.)



Also in 1997, lawmakers brought the various elements of the state's efforts together in a law establishing the Oregon Plan for Salmon and Watersheds. Lawmakers pumped \$30 million into the plan for the 1997-99 biennium. One year later, Oregon voters passed Ballot Measure 66 directing the state to dedicate 7.5 percent of state lottery proceeds to salmon recovery and watershed restoration efforts, which in turn led to major funding increases for such efforts in succeeding budget cycles.

Lawmakers locked the watershed health and salmon recovery effort more firmly in place in 1999 by transforming GWEB into the Oregon Watershed Enhancement Board (OWEB), a 17-member independent state agency whose members are drawn from state natural resource departments, federal agencies, tribes, academia, and the public at large. The board awards about \$25 million in competitive grants annually for watershed assessments and on-the-ground improvement efforts. It also provides watershed councils and private landowners with technical assistance and collects, analyzes, and publishes data on watershed conditions in the state.

OWEB estimates it will get \$59 million in state lottery funds in the new 2003-05 biennium, another \$14 million from the federal Pacific Coastal Salmon Recovery Program, and about one quarter of one million dollars in fees from Oregon drivers who buy custom "Oregon Salmon" license plates. Sixty-five percent of the lottery funds are dedicated by law for capital projects such as planting, fencing, culvert replacement, conservation easements, and water rights transfers. For example, OWEB recently awarded \$56,000 to the Coos Watershed Association to remove invasive plants along a tributary of the Coos River and replant it with native vegetation to enhance juvenile salmon habitat.

The remaining 35 percent of OWEB lottery funds plus the funds from other sources can be used for non-capital purposes such as technical assistance, monitoring, data collection and reporting, and perhaps most importantly, for the salaries of watershed council coordinators and staff.

Myron notes that the Oregon Plan and the multistakeholder watershed councils it promotes have helped demolish bureaucratic stovepipes isolating state agencies. Now in their second decade, they stand apart in terms of the central role assigned to voluntary, stakeholder-driven watershed councils and the dedicated financial support provided for operations and staffing. Indeed, Oregon officials and others say their watershed councils have become as much a part of the state's culture as the salmon they work to protect.

* Resources for Action

Oregon Watershed Enhancement Board

<http://www.oweb.state.or.us>

The Oregon Plan for Salmon and Watersheds

<http://www.oregon-plan.org>

For the Sake of the Salmon

<http://www.4sos.org>

River Network

<http://www.rivernetnetwork.org>

U.S. Environmental Protection Agency's Watershed Information Network

<http://www.epa.gov/OWOW/win/index.html>

* Additional Reading

"Forming/Running a Watershed Group," a compilation of resources

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The Oregon Plan for Salmon and Watersheds 2001 Annual Report
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<http://www.oregon-plan.org/cdrom/index.html>

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<http://www.epa.gov/owow/forum/finalrpt.pdf>

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A Blueprint for Greener Buildings

Ask a group of friends to name top sources of energy waste and pollution, and odds are good that no one would answer “my house” or “the place where I work.” Yet the fact is that the nation’s 5 million commercial facilities and 76 million residential buildings consume more than two-fifths of all our energy. They also account for just over one-third of the nation’s carbon dioxide emissions (a chief culprit in climate change), about one-half of sulfur dioxide emissions, one-quarter of nitrous oxide emissions, and one-tenth of particulate emissions (all major contributors to smog and acid rain). The current construction boom is expected to add 38 million new buildings by the end of the decade, compounding the nation’s air, waste, and water quality problems. Construction and demolition already generates 136 million tons of waste annually.

Clearly, architects, builders, and their customers can play a huge role in overcoming some of our biggest environmental challenges. In the past, many have shunned environmentally conscious design and construction on the assumption that “green” buildings cost a lot more greenbacks. But in a positive development, a growing number of Americans are discovering that green buildings can yield significant cost savings over the long haul even as they help protect the environment.

As the name implies, green buildings use power and other natural resources far more efficiently and generate less pollution than buildings simply constructed to code. They also create a safer indoor environment by harnessing more natural lighting and using materials that make indoor air healthier to breathe.

A cutting-edge example of environmentally friendly industrial design is now taking shape just west of Detroit in Dearborn, Mich., the world headquarters of Ford Motor Co. Under the leadership of its chairman, Bill Ford, the company has hired world renowned environmental architect William A. McDonough to redesign Ford’s historic 600-acre Rouge complex.

The 84-year-old collection of foundries, factories, and mills was considered the epitome of world industry in the early 20th century (and inspired Mexican muralist Diego Rivera’s 1932 masterpiece, “Detroit Industry”). But the Rouge’s then-innovative industrial model of unloading raw materials at one end of the site, processing them in the middle, and driving new cars out the other wreaked major environmental harm over the years. The adjacent Rouge River that gave the complex its name essentially died. The soil became contaminated and the air grew fetid.

The centerpiece of the \$2 billion redesign project is a new, 750,000-square-foot assembly plant—constructed not on a sylvan “greenfield” but on one of the bleakest urban “brownfields” imaginable. In

PPI PLAY

“Green building” movement to construct offices and homes that use less energy, less water, and more environmentally-friendly materials

WHERE IT’S WORKING

California, Pennsylvania, Oregon, Washington, Michigan, New York, and Maryland

PLAYERS

State and local government, private sector, architects, engineers, and planners

PPI ONLINE.ORG KEYWORDS

“PPI Green Building Play”

“If all commercial buildings in the U.S. were as efficient as our Southern California office, the country would achieve 70 percent of its Kyoto Protocol obligation.”

—NRDC senior scientist Rob Watson

June 2003, workers completed the installation of a 10.4-acre “living roof” on the \$1 billion building. Composed of drought-resistant sedum, it is the largest such roof in the world. Virtually maintenance-free, it can absorb up to 4 million gallons of rainwater annually and is part of a broader storm-water runoff management system. In addition to absorbing water and the greenhouse gas carbon dioxide, the sedum roof produces oxygen and provides natural overhead insulation for the building, thereby reducing its energy costs. It is also expected to last twice as long as a traditional roof.

In addition to the living roof, the broader redesign effort features sunflowers and other plants throughout the grounds to rid soil of contaminants, vines to shade buildings, porous paving that filters water through underground beds of crushed stone, plant-lined “swales” to further improve stormwater management, and the planting of more than 1,000 trees. A new paint shop on the Rouge site that opened in September 2000 generates one-third less emissions from paint than the one it replaced. In the future, renewable energy sources such as fuel cells and solar arrays will augment the complex’s power grid.

A \$222 million package of tax breaks and incentives from local, county, and state government is helping fund the transformation. “Ford has taken a progressive stance on environmental issues and with our redevelopment of the Rouge Center we are putting our words into action,” says company vice president Tim O’Brien, who is leading the project. “The roof and other environmental initiatives we’re implementing are cost effective. Year after year they will save us money as well as conserve resources.”

“As you look into the future, the trend will be to ask industrial sites to be cleaner and cleaner,” lead architect McDonough noted in a November 2000 interview with *The Detroit News*. “If we meet or exceed the standards, there’s less need for regulatory oversight. What we’re essentially doing is converting buildings built for machines and now designing them to produce oxygen and offer a habitat for hummingbirds.” Elsewhere, environmental organizations including the National Audubon Society, Natural Resources Defense Council (NRDC), and World Resources Institute have commissioned many such green structures. For instance, in January 2004 actor Leonardo DiCaprio and Hollywood environmental activist Laurie David unveiled NRDC’s new regional headquarters in Santa Monica, Calif., a facility called the Redford Building, which they helped finance.

Located in a building that once housed an acupuncture school, the Redford Building uses 60 percent to 75 percent less electricity by maximizing natural light and using photo sensors to dim lamps when sunlight is bright enough to read by. It also uses 60 percent less water by filtering and disinfecting water reclaimed from rain gutters, sinks, and showers to flush toilets. Based on these and other attributes, the U.S. Green Building Council (USGBC) awarded the building its highest possible “platinum” rating, making it the “greenest building” in America.

Meanwhile, the newly-constructed Audubon Center near downtown Los Angeles (also platinum-rated by USGBC) is the first in the city to be entirely powered by on-site solar systems—functioning completely “off the grid.” According to the *Los Angeles Times*, the facility also is “off the sewer system”—using live cultures in sophisticated membranes to sanitize bathroom waste to a point of such purity that filtered water is able to percolate back into the ground.

As the Ford example shows, the green building movement is also gaining momentum beyond the nonprofit sector. Companies including Toyota, Steelcase, Herman Miller, and IBM have recently broken ground or completed construction on green buildings. For instance, Toyota Motor Sales, U.S.A. recently completed a 624,000-square foot headquarters expansion that costs less than the average rental space Toyota previously paid to house its 2,500 sales-division employees.

The USGBC recently gave the new facility its second-highest “gold” rating for features, such as one of the largest commercial solar rooftop electric systems in North America, which is expected to provide up to 20 percent of the building’s energy requirements. The building uses wood harvested from sustainable forests for construction and interior finishes as well as steel recycled from automobiles to form the building’s structural beams and columns. More than 90 percent of the waste from construction and



demolition is being recycled, some of it onsite as pavers in the facility's state-of-the art Xeriscape garden (see the "PPI Xeriscape Play"). Toyota's South Campus facility is furnished with recycled and recyclable carpets and work stations. Even the products used by janitors to clean the facility are non-toxic—a benefit to the environment and for people who use them.

In addition to the private sector, states including Pennsylvania, California, Oregon, New York, and Maryland have adopted green building policies. At the federal level, the U.S. Department of Energy's Federal Energy Management Program provides resources on best building practices.

To promote a common set of green building standards and spur their construction, USGBC created the Leadership in Energy and Environmental Design (LEED™) Green Building Rating System. Established in 1993, the USGBC is comprised of 3000 organizations, including architectural and engineering firms, product developers, financial institutions, and representatives from state and local government.

The nonprofit organization established the LEED rating system in 1994 and updated its standard in 2000 and 2002 to reflect refinements in green building construction and materials. The rating system may be applied to new and existing commercial, institutional, and high-rise residential buildings based on their environmental attributes. The system is comprised of 34 criteria, or "credits," as well as seven prerequisites across six broad categories: site selection, water efficiency, energy use, materials selection, indoor air quality, and design. Building scores determine LEED's four rating levels: platinum, gold, silver, and certified.

As of 2003, approximately 100 million square feet of buildings were undergoing LEED certification, according to a recent study commissioned by California's Sustainable Building Task Force. The Golden State leads the country in the number of LEED certified buildings (140). On a project per-capita basis and project per-state domestic product basis, however, California is rivaled by states including Pennsylvania, Oregon, and Washington, each of which have well-established programs to encourage green construction.

Although the green building movement clearly is gaining momentum, the perception that such structures are too costly and unproven persists, according to the California task force study. To help dispel such notions, the group set out to quantify the costs and benefits of green buildings. Estimation is complicated by the fact that most green buildings are too new to deliver cost-savings data, which typically are realized over a building's 20-year average life. Another problem is that green buildings lack "controls" or non-green counterparts simply built to code, which would permit accurate cost comparison.

Such measurement challenges notwithstanding, the task force studied 33 LEED-registered projects to develop data on the costs and benefits of green construction. It concluded that while upfront green building construction costs are about 2 percent higher than buildings simply constructed to code, green buildings generate about 20 percent in savings of initial construction costs over their lifetimes. In other words, an upfront investment of \$100,000 in green-building features into a \$5 million dollar project would result in about \$1 million worth of savings in today's dollars over the average 20-year life of the building. Most of the higher upfront cost is for the additional time architects and engineers need to design cleaner, greener building features.

Much of the savings come in the form of lower energy and water bills. But features such as improved natural lighting and cleaner indoor air also improve productivity and result in fewer lost work-days and worker's compensation claims. More important, environmentalists say, green buildings have the potential to improve the nation's energy independence.

"Operating commercial and residential buildings consumes over 40 percent of the country's energy—twice as much as passenger cars and trucks," says NRDC senior scientist Rob Watson, a driving force behind NRDC's new Santa Monica facility.

Even more promising, perhaps, is the fact that such savings are possible today without passing a single new law or resorting to existing mandates. Although states such as New York have passed tax incentive programs to encourage green building development, the movement for the most part is voluntary—illustrating the tremendous potential of the building sector to pave the way for a cleaner, more sustainable future.

* Resources for Action

Progressive Policy Institute's State Clean Air Exchange
<http://www.ppionline.org>

U.S. Green Building Council
<http://www.usgbc.org>

California Sustainable Building Task Force
<http://www.ciwmb.ca.gov/GreenBuilding/TaskForce/>

"The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force," October 2003
<http://www.usgbc.org/Docs/News/News477.pdf>

California Governor's Executive Order D-16-00 establishing state sustainable building goal
<http://www.governor.ca.gov>

Pennsylvania Governor's Green Government Council's
<http://www.gggc.state.pa.us/>

Ford Rouge Center Landscape Master Plan, William McDonough & Partners
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"Toyota campus expansion is a showcase of green building practices," Toyota Environmental Update, March 2003
<http://www.toyota.com/about/environment/news/update19.html>

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"Audubon Nature Center is Certified as Nation's Most Environmentally Friendly Building," National Audubon Society
http://www.audubon.org/news/press_releases/Debs_Platinum_011304.html#TopOfPage

Smart Communities Network, Energy Efficiency and Renewable Energy Network (EREN), A Project of the U.S. Department of Energy
<http://www.sustainable.doe.gov/buildings/gbintro.shtml>

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<http://www.latimes.com>

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Making Green Waves

Climate change is not just bad for the environment; it is bad for business and investors. Experts say dealing with global warming could cost major companies up to 15 percent of their total market capitalization and slice the value of shareholders' investments by between 5 percent and 7 percent. Yet only a handful of companies address the costs of climate change in their financial reports.

State retirement funds managers recognize the risks of this form of nondisclosure and are beginning to act. But they are not responding with mounds of new regulation. Rather, they are launching initiatives to promote greater awareness of the problem and using their massive public pension funds to invest in firms that develop cleaner technology.

California, which has two of the nation's three largest public pension funds, is leading the charge. The California Public Employees Retirement System (CalPERS) and the California State Teachers Retirement System (CalSTRS) are the largest pension funds in the world with assets, together totaling \$250 billion. When they speak about their investments, businesses listen. Companies certainly were listening in February 2004 when State Treasurer Phil Angelides, who sits on the boards of both funds, launched "Green Wave," a targeted investment initiative that will push for a cleaner environment while bolstering financial returns to California retirees.

The climate change initiative follows efforts similar to Angelides' in 2003 to use the pension funds' economic power to promote corporate governance reform. "There is a parallel between the corporate CEO who cooks the books to pump up the value of his company's stock while he is simultaneously looting the firm for his own gain, and a corporation that increases its returns for a few quarters by exploiting the environment," Angelides said. "The corporation that exploits the environment leaves behind both a damaged environment and, ultimately, a degraded company."

The Green Wave has four purposes. It demands environmental accountability and disclosure, targets private investment in environmental science, invests in stocks of environmentally responsible companies, and audits real estate portfolios to boost long-term value.

The CalPERS and CalSTRS will encourage companies they invest in to consistently and clearly report their environmental practices and liabilities. Angelides hopes greater corporate transparency about the costs of climate change will bring public pressure and compel companies to adopt sound environmental practices.

The funds will also invest up to \$500 million in the form of private equity, venture capital, and project financing in environmental technologies, and another \$1 billion in corporations and stock funds whose environmental practices have been carefully screened. The Green Wave's targeted investment thrust promises to spur new and growing industries developing clean, renewable energy. For example, the World Energy Council reports that the global market for renewable energy should reach \$625 billion by 2010 and \$1.9 trillion by 2020. As that market grows, it will create new jobs, provide significant financial returns on the pension funds' original investments, and contribute to cleaner land, air, and water. In addition, studies

PPI PLAY

Using public pension funds to prod companies to acknowledge the costs of climate change and to invest in cleaner technology

WHERE IT'S WORKING

California, Connecticut, and New York

PLAYERS

State treasurers, national investment funds, environmental organizations, public interest groups

PPIONLINE.ORG KEYWORDS

"PPI Green Waves Play"

show that in recent years environmentally screened funds have consistently out-performed their non-screened counterparts. In 2001 and 2002, screened portfolios grew by 7 percent despite a significant overall market downturn.

Finally, the pension funds will audit their combined \$16 billion in real estate holdings to advance green-building standards (see the “PPI Green Buildings Play”) and the use of clean and efficient energy, not just in California, but around the world.

California has been known for years for its tough energy efficiency standards, which help cut down on both environmental and economic waste. The savings are projected to reach \$57 billion by 2011, according to the state’s energy commission.

Ultimately, Angelides hopes the Green Wave initiative will send a message to companies that responsible attitudes about the environment add value for investors. The initiative’s principles were developed after a series of roundtable discussions among environmental technology experts, financial leaders, and public interest groups held at the Institutional Investor Summit on Climate in 2003 at the United Nations. The summit was sponsored by the Coalition for Environmentally Responsible Economies (CERES), a coalition of national investment funds, environmental organizations, and public interest groups.

During the past 13 years, CERES has emerged as the worldwide leader in standardized corporate environmental reporting and the promotion of transformed environmental management within firms. Formed out of a unique partnership between some of America’s most progressive investors and environmental groups, CERES has pioneered an innovative, practical approach toward encouraging greater corporate responsibility on environmental issues.

Representing over \$400 billion in assets, CERES’ investor members include state and municipal pension funds, socially responsible investment firms, religious groups, union funds, and foundations.

The 2003 U.N. meeting also served as a launching pad for a new Investor Network on Climate Risk (INCR), launched by managers of 10 major pension funds, including the state treasurers of California, Connecticut, and New York and the heads of several major labor union funds. Together, INCR participants oversee more than \$1 trillion in long-term investments. The group has released an action plan asking the Securities and Exchange Commission (SEC) and corporate boards of directors to address climate change risks in their evaluations of stock values.

“We believe that climate change may emerge as one of the most important financial risks of our time, with consequences that could affect us and our beneficiaries long into the future,” a statement from INCR’s leaders said.

Topping INCR’s priority list is pressing the SEC to enforce corporate disclosure requirements on environmental liabilities. According to a June 2003 CERES report, the U.S. Environmental Protection Agency and the General Accounting Office found that corporations consistently fail to fully disclose their environmental liabilities, such as toxic waste cleanup costs, to the SEC or shareholders. Many more companies choose to ignore climate change liabilities altogether in their financial reports.

“Climate change information presented in company environmental reports run the gamut—from mere blurbs to detailed accounts of science, policy, and company views,” the CERES report found. “The lack of disclosure in securities filings about climate change raises serious questions about the adequacy of reporting and enforcement of SEC rules.”

Meanwhile, the re-insurance industry, which provides insurance for other insurance companies, is also pressing for greater disclosure. According to recent press reports, for example, Swiss re-insurance giant Swiss Re has been asking its customer companies about their preparedness for climate change when those firms’ re-insurance policies come up for renewal. Re-insurers reportedly are concerned about the potential financial fallout of shareholder lawsuits against companies that ignore shareholder warnings about the need to act on climate change now when the costs would be less than under strict future regulatory schemes.



The investor network's action plan also calls for major greenhouse gas emitters, such as coal-fired power plants, to prepare reports detailing how the shareholder value may be affected by climate change and the costs of failing to respond to these threats. Reacting to similar entreaties from shareholders, including religious denominations, executives at American Electric Power Co. and Cinergy Corp. recently announced they will release company studies estimating how greenhouse gas regulation could affect their operations and financial health.

Investor network members said they are asking companies to leapfrog possible government regulation of greenhouse gas emissions in the interest of healthy corporate governance. As California Treasurer Angelides notes, "the corporate scandals over the last couple of years have made it clear that investors need to pay more attention to corporate practices that affect long-term value."

* Resources for Action

The Green Wave Initiative

<http://www.treasurer.ca.gov/news/greenwave.htm>

Coalition for Environmentally Responsible Economies (CERES)

www.ceres.org

CERES Investor Network on Climate Risk

<http://www.incr.com/>

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Fact Sheet for the Green Wave Initiative

California State Treasurer's Office

http://www.treasurer.ca.gov/news/envrmt/green_facts.pdf

"Corporate Governance and Climate Change: Making the Connection"

CERES

http://www.ceres.org/pdf/ceres_cg_rprt.pdf

"Investor Call for Action on Climate Risk"

CERES Investor Network on Climate Risk

http://www.incr.com/call_for_action.htm

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“Hook and Bullet” Wetland Protection

In the early 1980s, conservatives in the West launched a “sage brush rebellion” to wrest control over vast tracts of Western land from distant federal agencies. They found enthusiastic allies in President Ronald Reagan and his controversial Interior Secretary James Watt, as well as among many in the nation’s hunting and fishing community.

But in 2003, when a new Republican administration sought to relax federal regulations that protect wetlands and the fish and game that depend on them, it unexpectedly found itself at odds with many of those same often-Republican hunters and anglers.

“You know, this is not a constituency that’s overly motivated by people sitting in trees for months if not years,” noted Chris Wood of the anglers group Trout Unlimited (TU), whose membership is 2:1 Republican, in a recent interview with National Public Radio. “There are 50 million Americans who hunt and fish. This is generally a moderate to conservative group, and they’re very active in their communities. ... (They) fill that vacuum right now in the minds of voters who don’t really trust the administration on the environment and they don’t really trust what they’re hearing from the more traditional environmental community. But they probably are willing to listen to the local rod-and-gun club, or the local TU chapter that says, ‘Hey, this is a problem. We gotta get worked up about this.’”

For hunters and anglers, the disappearance of wetlands is definitely something about which to get agitated. For generations, swamps, seasonal ponds, and marshes were considered nuisances that needed to be put to productive use. In California, for instance, nearly 4 million acres—or 95 percent—of the state’s wetlands have been filled, plowed, and paved over. Today, however, Americans increasingly appreciate the role wetlands play in protecting wildlife and filtering pollutants from our water. Congress amended the Clean Water Act of 1970 to further preserve them.

In 2001, however, the U.S. Supreme Court held that non-navigable, “isolated” waters—vernal pools and mudflats used by migrating birds—did not merit Clean Water Act protection. In response, the Bush administration announced in 2003 that it intended to rewrite federal regulations to bring them in line with the high court’s ruling. Although the administration asserted that it remains committed to the nation’s longstanding “no net loss” wetlands policy, critics of the proposed rule change argued it would lift federal protection for at least 20 percent of the nation’s wetlands—some 20 million acres in all—from pollution and development.

PPI PLAY

Rallying the angling, hunting, and outdoor-enthusiast communities to support federal clean water protections

WHERE IT’S WORKING

Across the nation

PLAYERS

Hunting and fishing organizations, state fish and wildlife agencies, the U.S. Environmental Protection Agency and Army Corps of Engineers

PPIONLINE.ORG KEYWORDS

“PPI Hook and Bullet Play”

“For America’s 47.8 million hunters and anglers the protection of the wetlands and waters where we hunt and fish is one of the single most important issues pending before the federal government.”

— Theodore Roosevelt Conservation Partnership

Relaxation of the “no net loss” policy, critics said, would effectively transfer responsibility for protecting millions of acres of wetlands, creeks, streams, and ponds from the U.S. Environmental Protection Agency (EPA) and the Army Corps of Engineers to the states. Critics said this would leave wetlands highly vulnerable to development and environmental degradation because most states lack wetlands protection laws and regulations as strong as the federal government’s.

In addition, they argued that while many environmental problems are legitimate state issues, wetlands appropriately fall within the federal government’s purview because the issues surrounding them frequently traverse state and even international boundaries. Some 39 states and most environmental groups protested the proposed rule change. Surprisingly, some of the strongest criticism came from a growing alliance of anglers, hunters, and outdoor enthusiasts.

Although the “hook and bullet” set, as this community is commonly known, looks askance at liberal environmentalism, it draws on the progressive environmental tradition of one of the nation’s greatest conservationists, Theodore Roosevelt.

Roosevelt, a renowned big-game hunter, made conservation a central theme of his early 20th century Republican presidential administration. He created five national parks, four big-game refuges, 51 bird reservations, and the National Forest Service. He advocated sustainable development, the protection and management of wild game, and the preservation of wild spaces. To Roosevelt, America’s vast lands and the natural resources within them were a major source of the nation’s economic wealth and global power. “Our position in the world has been attained by the extent and thoroughness of the control we have achieved over nature,” he wrote, “but we are more, and not less, dependent upon what she furnishes than at any previous time of history.”

Appropriately, the hunting and fishing umbrella group that spearheaded the recent fight against the federal wetlands policy shift goes by the name of the Theodore Roosevelt Conservation Partnership (TRCP). While many individual organizations, including state fish and wildlife agencies and groups such as TU, the National Rifle Association, and Ducks Unlimited work to preserve and manage the nation’s fish and wildlife resources and habitats, TRCP works to create and amplify a pro-hunting and angling voice in Washington and in statehouses across the country. By most accounts, these organizations are emerging as a powerful new voice in environmental protection.

Recognizing the potential implications of the proposed wetlands rule change, TRCP last year sprang into action, maintaining that “for America’s 47.8 million hunters and anglers the protection of the wetlands and waters where we hunt and fish is one of the single most important issues pending before the federal government.”

In a letter addressed to President Bush, signed by more than 30 hunting and angling organizations, TRCP observed that America’s rich hunting and fishing traditions are “inextricably tied to the protection of habitat, and as sportsmen and Republican presidents have known for over 100 years, isolated wetlands and small ponds are among the most important of all habitats.”

While the Bush administration has refrained from rolling out the welcome mat for most mainstream environmental organizations, in December 2004 it invited leaders from roughly 20 hook and bullet groups to the White House to discuss their concerns about the proposed wetlands rule change. Four days later, the White House scrapped its plans to relax the regulations. The administration, however, left related EPA “guidelines” intact, which the groups fear will lead to the draining of more isolated wetlands. They are continuing to press the White House to rescind the guidelines and have called for a nationwide plan to stem the loss of wetlands habitat.

Emboldened by its recent partial victory, the hook and bullet community has set its sights on other issues, including reducing the impact of federal transportation programs on fish and wildlife and securing more funding for “conservation reserves”—a program to encourage farmers and ranchers to keep sensi-



tive environmental lands fallow. Most notably, TRCP is working with the U.S. Bureau of Land Management, ranchers, and other landowners, through a series of conferences in Wyoming, to ensure that energy development is done in a manner compatible with wildlife needs.

Mainstream environmental groups have clearly been in the vanguard of environmental protection since the 1970s and have a vital and ongoing role to play. But as the recent TRCP victory illustrates, by putting conservation back on the environmental agenda, the hook and bullet community is staking out a middle ground in the debate and becoming an important voice in the quest to protect and promote America's environmental quality.

* Resources for Action

Theodore Roosevelt Conservation Partnership
www.trcp.org

Ducks Unlimited
<http://www.ducksunlimited.org/>

National Rifle Association
<http://www.nra.org/>

Trout Unlimited
<http://www.tu.org/index.asp>

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www.epa.gov

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Rebuilding America's First Suburbs

Every day, countless Americans curse the traffic they endure getting from their homes in outlying suburbs to jobs down town or across town, and then back again at night. It is more than just a headache, it is bad for the economy and terrible for the environment.

To date, most policies to ease this problem have focused on geographic extremes: reining in development on the outer fringe while luring jobs and people back to the urban core. Typically overlooked are those aging, inner-ring “first suburbs” that people pass through during their commutes. It is where Rob and Laura Petrie of “The Dick Van Dyke Show” raised their son in prosperity in the early 1960s. Today it is the economically and socially frayed backdrop for an Eminem rap song. Original homeowners of these first suburbs have died or moved to retirement communities, their children (particularly in the industrial Midwest) moved out of state or even further from the city, and families of lesser means took their places. Many of these first suburbs now confront what had been exclusively inner-city challenges: deteriorating and obsolete real estate, shrinking tax bases, problematic sewer and water systems, business disinvestment, and residents with modest or low incomes.

Nationwide, more than one-quarter of the nation's housing stock is 50 years of age or older. But in places such as Ohio's Cuyahoga County surrounding Cleveland, 74 percent of all residential real estate was built before 1960, with renovation and repair needs beyond the financial means of their current owners and occupants. Similarly, much of the county's water and sewer lines are now more than 50 years old and in desperate need of repair. The American Waterworks Association estimates that in the next 30 years, repairs to the nation's aging water mains and sewers in places such as Cuyahoga County will cost up to \$250 billion.

Although they once were a place that housed a prosperous middle class, today the first suburbs increasingly are home to America's working families—people who earn too much to qualify for government assistance but too little to do more than live from paycheck to paycheck. Compounding the problem are big-box retailers that prefer to locate in newer, more prosperous outlying areas, depleting the first suburbs' tax bases and making it tough for their small business to compete.

The deterioration of housing and infrastructure, coupled with the lure of newer housing and retail establishments on the outskirts of cities, creates a downward spiral for these older suburban neighborhoods—draining businesses, jobs, and tax dollars.

PPI PLAY

Revitalizing mature, developed communities and raising awareness of the problems associated with urban sprawl and disinvestment

WHERE IT'S WORKING

Ohio, Michigan, Minnesota, Missouri, and other Midwestern states

PLAYERS

State and local government, economic development organizations, environmental groups, local residents

PPI ONLINE.ORG KEYWORDS

“PPI First Suburbs Play”

“We want to change policies from those that subsidize ‘out-migration’ and disinvestment in our communities, to those that promote redevelopment and nurturing of our neighborhoods.”

—Former Vice Mayor Ken Montlack, Cleveland Heights, Ohio

Nevertheless, studies have shown that dollar for dollar, it is far more economical to invest in first suburbs than to build from the ground up on the suburban fringes. The Center for Neighborhood Technology, for example, found that in the Chicago region the marginal infrastructure costs of homes in previously undeveloped areas is around \$60,000 per unit. In contrast, the cost to build a home in an inner-ring area, where infrastructure (albeit aging) already exists, is about \$10,000 per unit. And because first suburbs are adjacent to cities, redevelopment of these neighborhoods can significantly ease traffic congestion as well as the associated pollution and energy waste.

The challenge for first suburbs is to awaken policymakers to these facts, and their residents and leaders are rising to the occasion. In 1992, for example, Harvard-educated journalist David Beach founded EcoCity Cleveland, a monthly journal that quickly gained 1,000 subscribers. It was one of the nation's first publications aimed at a general audience to report on the links between sprawl, the environment, civic redevelopment, and quality of life. "We've tried all along not just to complain about environmental problems, but to provide a positive vision of how things can change," Beach says.

In the mid 1990s, first-suburb leaders in the Cleveland region began discussing how they could work together to tackle the type of problems Beach chronicled. Those discussions led to the creation in 1996 of the Northeast Ohio First Suburbs Consortium (FSC). "There are 59 separate municipalities in Cuyahoga County, and we all thought of ourselves as 59 separate city-states, all toiling pretty much in isolation," says then-Cleveland Heights Vice Mayor Ken Montlack. "At one of our city council retreats, in 1996, I suggested we try to conduct some outreach for better cooperation."

Today, 15 municipalities participate in the Northeast Ohio FSC. Similar consortia have since been set up in Columbus and are being organized in Cincinnati metropolitan areas. The Cleveland regional group has focused on two goals: revitalizing the retail sector and helping residents renovate their aging homes.

On the retail front, Cleveland's first-suburb officials launched a \$250,000 grant-supported study aimed at revitalizing and promoting their older commercial districts, particularly with an eye toward competition from outlying big box stores. The result was the creation of the First Suburbs Development Council, a nonprofit corporation that helps member communities identify, prepare, and market sites to private-sector developers. The council serves as a regional clearinghouse for redevelopment opportunities and provides professional economic development assistance to FSC municipalities at far lower cost than they would otherwise incur if they sought the same services individually.

To help renovate housing stock, the Cleveland area FSC in 1998 worked with county Treasurer Jim Rokakis to create the Home Enhancement Loan Program (HELP). Administered by the Cuyahoga County treasurer's office, HELP allows homeowners in older suburbs to borrow money to repair or remodel their home or rental property at interest rates 3 percent below what a bank would offer. The goal is to help residents renovate their homes rather than trade up for a home on the urban fringe. According to a recent study by the Brookings Institution, HELP has loaned more than \$30 million to renovate 3,000 homes since its inception. Under its Housing Initiative, the FSC has provided program assistance in the design and redevelopment of two-family houses and bungalows.

Similar programs are sprouting up in other parts of the Midwest. For example, Minnesota's "This Old House" program (which expired in early 2003) provided a property tax break that helped people fix up homes built before 1958 and valued below \$400,000. Under the program, the value of improvements to a home were excluded for 10 years when the home was assessed for property tax purposes. Legislation was introduced in 2003 to revive the program. Backers say the program was a great incentive for people to reinvest in older homes in Minneapolis and the first suburbs of Hennepin County. Similarly, the state of Missouri's Neighborhood Preservation Act provides tax credits to homeowners to offset the costs of investment in repair and construction of owner-occupied housing in moderate income neighborhoods, such as those on the outskirts of St. Louis.



The Michigan Suburbs Alliance (MSA), a group of 25 Metro Detroit communities with nearly 1 million residents, wants to provide incentives for homeowners and landlords to modernize old properties, according to *The Detroit News*. The alliance will unveil a website later this year that lists commercial properties for sale. In the next 18 months, the group hopes to form a coalition of government agencies and banks to make it easier to buy and demolish eyesores, said Tom Barwin, secretary treasurer of the alliance.

In the meantime, MSA is leading an effort to identify redevelopment best practices and create a system for recognizing as “redevelopment ready” communities that adopt streamlined permit approval processes and other measures that make it cost effective to do infill projects. “Regional planning and other smart growth policies are important,” said Jim Townsend, MSA’s executive director, “but we also must engage the market by making older urban and suburban communities more attractive to developers. We need to face the fact that it is more challenging to do infill and redevelopment projects. Our Redevelopment Ready Communities project is designed to help communities and developers deal with those complexities.”

While first suburbs can achieve a great deal by working together to reinvigorate their retail and residential sectors, they need federal help to overcome their staggering infrastructural challenges. Washington historically provided much of the outlays for services, such as public water systems. But since the late 1980s, state and local governments have been picking up about 75 percent of the tab for public infrastructure outlays.

Several pending bills in Congress could help speed the recovery of first suburbs. For example, the proposed “Clean Water Infrastructure Financing Act” (S. 170 and H.R. 20) would help states establish simplified methods for securing federal water infrastructure monies and extend the repayment period for financially distressed communities. Meanwhile, the proposed “Rebuild America Act” (S. 1409 and H.R. 2615) would provide funding for public works initiatives to promote clean water.

While Washington decides what to do, pioneers such as the Northeast Ohio FSC will continue to develop and pilot-test new ways to rebuild the nation’s first suburbs and assist the working families who live in them.

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<http://www.firstsuburbs.org/index.htm>

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Charting a “Soft Path” to Cleaner Water

Our nation’s economy and environment depend heavily on clean water. During the past 20 years, U.S. communities have spent more than \$1 trillion (in 2001 dollars) to treat and supply drinking water and to treat and dispose of wastewater. Much of the infrastructure that accomplishes these tasks is nearing the end of its lifespan, however, and will need to be replaced during the next 20 to 40 years.

The U.S. Environmental Protection Agency (EPA) estimates that without additional investment, spending on water and wastewater infrastructure could fall \$535 billion short of projected needs during the next 20 years. Although the federal government historically has picked up much of the tab for water treatment facilities, it increasingly has been shifting more of the cost to states and localities.

Funding is not the only challenge for cities and states. About two-thirds of the pollutants entering our water today come from non-point sources, such as stormwater runoff from farms and city streets. It is a problem that doesn’t lend itself well to conventional engineering solutions. In addition, widespread drought and the subsequent depletion of aquifers in recent years have raised concerns about the adequacy of water supplies throughout the country.

Water management in the United States is another complicating factor. It has been typified for generations by capital-intensive engineering projects: laying more pipes, transporting water ever-longer distances to and from big central treatment plants, digging deeper wells, dredging deeper channels, and building higher levees. Water management’s compartmentalized nature reinforces this approach. The field is fragmented into numerous sub-specialties, such as drinking water, flood control, and wastewater treatment. Our leading water quality problems today are often the result of complex interactions that span across specialties, but bureaucratic “stovepipe” approaches to water management are a poor match for such challenges.

Some of the most promising new approaches to water resource management rely not on centralized “big infrastructure,” but instead on decentralized tools that use the environment’s natural ability to process and treat polluted water right where it is produced at home or in the workplace. These so-called “soft path” strategies also lend themselves to a more integrated water management approach that addresses issues such as drinking water, wastewater, irrigation, and storm water runoff simultaneously.

Maryland’s Prince George’s County, for example, has been a national leader in the use of “low-impact development” (LID) practices, which improve water quality by taking advantage of the land’s natural filtering ability. On a LID site, instead of laying expensive drainage pipes to channel stormwater to a far-off treatment facility, water might be stored and treated naturally onsite in a “rain garden” composed of filtering layers of gravel, sand, and organic materials. Other runoff treatment tools in the LID toolkit include filter/buffer strips, dry wells, grass swales, and rooftop gardens. LID sites also often employ rain barrels or cisterns to collect rainwater for re-use in irrigation, which saves money and conserves water.

The LID practices can be employed not just in new subdivisions, but in redeveloped urban settings as well, creating welcome green space in cities. They also reduce wear-and-tear on our aging sewer and wastewater treatment systems by keeping water out.

PPI PLAY

Using alternatives to large water-infrastructure projects to improve water quality and cut costs

WHERE IT’S WORKING

Massachusetts, Maryland, Florida, New York, North Carolina, Pennsylvania, Texas, and Vermont

PLAYERS

State and local government, the U.S. Environmental Protection Agency, water engineers, city planners, interest groups, citizens

PPIONLINE.ORG KEYWORDS

“PPI Soft Path Play”

Vermont is another pioneer charting the soft path to cleaner water. The 120-home village of Warren, for example, has received a \$1.5 million grant from the federal EPA to demonstrate a decentralized approach to planning and engineering the village wastewater system, maximizing the use of onsite systems to save money and improve community support. The new system combines management of onsite systems with a small, conventional central system, and the approach has garnered very strong community support.

Vermont is also breaking new ground to address the problem of stormwater runoff. The state has 126 “impaired” surface-water bodies. Twenty-five of those lakes and ponds get their pollution mainly from stormwater runoff, and about one-half of those in turn are located in Chittenden County, the most populous and developed region in the state. In areas with plenty of pavement and relatively less open space like Chittenden, pollution collects on the ground and gets carried into waterways by rainwater and snowmelt.

To address the problem, county water officials plan to install small, natural stormwater treatment systems in unused strips of land adjacent to commercial centers. They are also forming an innovative “stormwater utility” to manage these and other dispersed systems. And in anticipation of stiffer state and federal mandates to improve stormwater runoff problems, the towns of Colchester and South Burlington are moving away from fragmented, “stovepipe” management approaches and toward more integrated water management planning.

“Stormwater is something that people have perceived as being free, but it is not,” notes Juli Beth Hoover, South Burlington’s director of planning and zoning. “There are hidden costs—pollution, damage to property—that happen over time.”

As these and nearly 20 other demonstration projects around the country are proving, soft path approaches can deliver communities significant up-front and long-term financial savings, plus benefits in the form of preserved and restored waterways and more open space. They replace the “big infrastructure” approaches that often give rise to sprawling development, traffic congestion, environmental degradation, and diminished quality of life. And in some instances, soft path methods represent the only way to protect fish habitat and other valued ecosystems because “hard path” alternatives are not up to the job or simply do not exist.

Yet, despite these potential benefits, the nation has been slow to embrace soft path approaches. Many regulatory agencies have unfounded concerns that these newer methods will not protect public health as well as the old ways. Engineers’ lack of training in and familiarity with soft path techniques is another formidable problem. The Coalition for Alternative Wastewater Treatment and other groups have emerged to help break down such barriers. The coalition backs more research to measure how soft path approaches affect public health. It also urges broadening certification standards for water-resource engineers to sharpen their knowledge of onsite and decentralized wastewater treatment.

Perhaps most importantly, the coalition and similar groups urge the adoption of more flexible, community-based environmental laws and regulations akin to the “second generation” environmental policies long advocated by the Progressive Policy Institute. Such approaches can help break down the bureaucratic “stovepipes” that stifle innovative, integrated, community-based approaches to the nation’s water quality problems.

During the next two to four decades, the nation will have to replace virtually its entire water infrastructure. Soft path options can do the job as well or better, at less cost, and with more benefit to society than the methods that now exist. With the federal government unlikely to resume funding the lion’s share of water treatment facilities any time soon, states and localities face enormous costs ahead. Washington can help ease their burden by encouraging the integration of soft path approaches into conventional practice, supporting research and development, encouraging even more demonstration projects, and, most of all, promoting policy reform that encourages flexibility and innovation.



* Resources for Action

The National Decentralized Water Resources Capacity Development Project
<http://www.ndwrcdp.org>

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Water Quality Trading

Market-based policies to curb pollution have been enormously successful in the fight against acid rain and are now being deployed in the fight against smog and climate change. State and local officials are harnessing this promising new tool to tackle the tough problem of water pollution that flows off city streets and farm fields.

Unlike water pollution from a single point, like a factory or sewage treatment plant, non-point source (NPS) pollution comes from multiple sources—pastures, suburban lawns, construction sites, and even contaminants that fall from the air. States say that NPS pollution is today's leading remaining cause of water quality problems. While the Clean Water Act (CWA) of 1972 has done a great deal to clean up water pollution from individual sources, it is poorly suited to handle pollution from numerous sites that add up quickly when rain washes it into streams and rivers. This is due in part to CWA exemptions for certain types of run-off, such as water used for agricultural irrigation.

This NPS pollution can be curbed partially through better land management practices, such as calibrating agricultural fertilizer more carefully, keeping livestock away from fragile stream banks, and planting grass and tree “buffer zones” to filter runoff from parking lots or fields. Generally speaking, it is now more cost effective to control NPS pollution in these ways than it is to squeeze more efficiency out of equipment to control pollution from factories and other point sources.

This cost difference makes water quality problems ideally suited to market-based control solutions. “Cap and trade” programs, for example, set a limit on pollutants from all sources, distribute emission credits to polluters that reach that limit, allow polluters to meet their limit however they see fit, and create markets for trade in the excess credits of those who excel at cutting pollution. Under such a system, for example, rather than install expensive new filters to meet its water pollution limit, a factory might find it cheaper to buy excess credits from farmers who have cut more than their allotted share of pollution through improved land-management practices.

“Trading can be a cheaper answer to solving water quality problems in the United States and around the world,” says Paul Faeth, managing director of World Resources Institute (WRI). Recently, WRI conducted a study of the cost of controlling phosphorous pollution in three watersheds in Minnesota, Michigan, and Wisconsin (see the “PPI Watershed Play”). It found that the cost of reducing phosphorous strictly from point sources would be considerably higher than costs associated with effluent trading between point and non-point sources.

PPI PLAY

Harnessing market forces to protect and improve water quality

WHERE IT'S WORKING

Idaho, Oregon, Minnesota, Michigan, Wisconsin, Connecticut, Maryland, Colorado, and North Carolina

PLAYERS

Federal, state, and local government, environmental groups, farmers, manufacturers

PPIONLINE.ORG KEYWORDS

“PPI Water Quality Play”

“Water quality trading and similar market-based approaches truly are the wave of the future in environmental protection.”

—Former EPA Administrator Christine Todd Whitman

A number of states including Idaho, Oregon, Minnesota, Connecticut, Maryland, Colorado, and North Carolina have launched water quality trading experiments. Among the most mature, North Carolina's program, launched in 1989, harnesses water quality trading to reduce pollutants in the Tar-Pamlico River Basin—the fourth largest river basin in North Carolina and a major tributary to the Pamlico Sound. Together, the Pamlico Sound and neighboring Albemarle Sound constitute one of the most productive estuarine systems in the country. Based on the success of this effort, North Carolina recently launched another effort, patterned after the Tar-Pamlico program, to reduce nitrogen in the Neuse River Basin.

Water quality trading is also being put to the test out West. The Idaho Department of Environmental Quality (DEQ) and U.S. Environmental Protection Agency Region 10 have been studying how to use pollutant trading to meet water quality goals for the Lower Boise and Middle Snake rivers. Idaho's effort is part of a broader program in the Pacific Northwest supported by the EPA's office in the region. A full-time water quality trading coordinator, with considerable experience designing and implementing air emissions trading for EPA's acid rain program, oversees the development of trading systems in the region.

The Lower Boise River Effluent Trading Demonstration Project, for example, has been launched to determine whether trading can improve water quality at a lower cost. Federal, state, and local water quality managers, farmers, businesses, municipalities, and environmentalists participated in its design. Trading will not begin until officials set the limits on pollutants (known as total maximum daily loads) that will be allowed to flow into the Lower Boise watershed. In the meantime, Idaho DEQ has used the experience it has gained to issue draft guidelines to help other parts of the state launch similar programs. The guidelines specify the conditions under which pollutant trading may take place, establish record keeping and reporting procedures, and prescribe how to develop best-management practices for each watershed in which trading occurs.

Water quality trading can also be extended to heat from human sources, which spurs plant growth that robs water of needed oxygen. EPA Region 10, in cooperation with the Oregon Department of Environmental Quality, is developing a project to trade water temperature on the Tualatin River, just outside of Portland. The amount of heat, or "thermal load," of the effluent discharged by the area's two sewage treatment plants need to be reduced by 95 percent to stay within permitted levels. Rather than install expensive refrigeration systems, the facilities are proposing instead to restore areas along stream banks further up in the watershed, creating shade to keep water temperatures down. Clean Water Services, a wastewater and storm-water management utility in Washington County working with the Oregon DEQ, has said that it expects to complete 35 miles of stream restoration. Environmental managers are close to working out the technical details that will ensure the proposed trading system meets its objectives.

To help refine this promising new tool and to support state efforts, the EPA is currently supporting 11 state trading projects, each of which addresses a different type of water quality challenge. The EPA supplied more than \$800,000 for the effort in fiscal year 2002 and EPA regional offices are providing technical and other support to the projects.

"Water quality trading and similar market-based approaches truly are the wave of the future in environmental protection," said former EPA Administrator Christine Todd Whitman. "They not only harness the power of the market, they build effective partnerships among EPA, state, local and tribal governments, and other stakeholders around shared values and common goals."

* Resources for Action

Idaho Department of Environmental Quality "Pollutant Trading Guidance" and "Lower Boise River Effluent Trading Demonstration Project"
http://www.deq.state.id.us/water/wastewater/pollutant_trading_main.htm



Oregon Department of Environmental Quality project to trade water temperature on the Tualatin River (see "Clean Water Services")
<http://www.deq.state.or.us/wq/wqpermit/indvpermitdocs.htm>

EPA's Water Quality Trading Website
<http://www.epa.gov/OWOW/watershed/trading.htm>

Region 10 Water Quality Trading Assessment Handbook
<http://yosemite.epa.gov/>

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The Joyce Foundation supports efforts to protect the natural environment of the Great Lakes, to reduce poverty and violence in the region, and to ensure that its people have access to good schools, decent jobs, and a diverse and thriving culture. The foundation is especially interested in improving public policies, because public systems such as education and welfare directly affect the lives of so many people, and because public policies help shape private sector decisions about jobs, the environment, and the health of our communities. To ensure that public policies truly reflect public rather than private interests, the foundation supports efforts to reform the system of financing election campaigns. Find more about the Joyce Foundation at <http://www.joycefdn.org>.

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The Center for Innovation & the Environment at PPI is dedicated to developing a second generation of environmental and natural resource policies that create incentives to drive continuous and efficient improvement in environmental quality. Five key principles guide our work: set realistic goals and priorities informed by sound science and economics, align decisionmaking with the geography of environmental concerns, harness market forces, seek flexible means to achieve public goals, and measure results. Find more at <http://www.ppionline.org>.

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